CLASS 514, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITIONS

SECTION I - CLASS DEFINITION

Class 514 is an integral part of Class 424. It incorporates all the definitions and rules as to subject matter of Class 424.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

A. GENERAL STATEMENT OF CLASS SUBJECT MATTER

(1) Official subclasses 1-789 do not provide for cross-reference patents which are originally classified in Class 260 (Compound area) or in the Class 530-570 series or in Class 585. Cross-reference patents that are originally classified in the Class 520 series are allowed.

(2) The cross-reference rule elaborated above means that a specific compound having a disclosed or even specifically claimed utility (i.e., compound X useful as an anti-cancer drug) will be classifiable only in Class 260 or in the Class 530-570 series or in class 585.

B. OFFICIAL CROSS-REFERENCE ART COLLECTIONS:

(1) Peptide and protein art collections (subclasses 800-809).

(2) Specifically disclosed disease condition and pharmaceutical effect (subclasses 810-935).

The official cross-reference art collections subclasses 800-935 take patents dating from Jan.1, 1965. These collections provide for data from all classes including Classes 260, 530-570, and Class 585.

C. OFFICIAL CROSS-REFERENCE ART COLLECTIONS:

Subclasses 936-975 provide for specifically disclosed carrier specified nonbioactive ingredient (subclasses 936-975).

This art collection provides (1) data from Class 260 (Compounds) and Classes 530-570 series and Class 585 dating from Jan. 1, 1965, and (2) data from all other classes regardless of date.

Class 514 and Class 424 differ in scope as to cross-referencing procedure. Those subclasses identified as Class 424 will accept cross-references from all classes including 424, 260, Classes 530-570 series and Class 585 as has been done in the past. An exception within Class 424 are subclasses 1.11+ wherein the 514 rule is respected and therefore cross-referencing is not accepted.

SCHEDULE OUTLINE OF CLASS 514

The schedule is divided into a number of parts, each of which is distinct and provides for different types of subject matter. The following is a breakdown of the major areas and indicates the type of subject matter provided therein.

(A) Subclasses 1-768 provide for the subject matter proper under Class 424 containing a designated organic active ingredient (DOAI), methods of making such compositions and methods of using such compositions. Also included herein are method of using a specified DOAI.

(B) Subclasses 769-771 provide for subject matter relating to a designated inorganic nonactive ingredient (See Glossary below) other than water or designated elemental nonactive material (See Glossary). These subclasses provide for compositions which may have an organic active material and which active material does not qualify as a DOAI as well as to methods of preparing or using such compositions. These subclasses also provide for compositions containing a designated inorganic nonactive material other than water or designated elemental material and which composition qualifies as subject matter proper for Class 424 and is not provided higher in the classification schedule as well as to methods of preparing or using such compositions.

(C) Subclasses 772-788 provide for subject matter relating to a designated organic nonactive ingredient (See GLOSSARY) other than a hydrocarbon. These subclasses provide for compositions which may have an organic active material and which active material does not qualify as a DOAI as well as to methods of preparing or using such compositions.

(D) Subclass 789 is the miscellaneous subclass for subject matter proper in Class 424 or 514. This subclass provides for compositions, methods of preparing or using same.

(E) Subclasses 800-809 are art collections pertaining to

protein and peptide and relate to subject matter only in Class 514.

(F) Subclasses 810-935 are art collections pertaining to specifically disclosed disease condition and pharmaceutical effect and relate to subject matter only in Class 514.

(G) Subclasses 936-975 are art collections pertaining to specifically disclosed carrier system; physical form or specified nonbioactive ingredient and relate to subject matter only in Class 514.

DESIGNATED ORGANIC ACTIVE INGREDIENT (DOAI)

DOAI is when (a) the active ingredient is identified by at least one chemical atom, e.g., organic phosphorus compound, etc. or (b) the active ingredient is identified as a generic type of chemical compound, e.g., alcohol, ether, etc.

The term active denotes a physiological, pharmacological or biological effect.

For purposes of this class organic active ingredient although inherently reciting the presence of a carbon atom is considered to be too broad and therefore will not be considered as DOAI's is as follows: chalcogen, carboxylic acid, phosphorus containing, organic alkali or earth metal compound, hydrocarbon, halogenated hydrocarbon, etc.

The following list below is not exhaustive and merely emumerates certain materials that will not be considered as DOAI's, e.g., organic compound, solvent, biocide, pharmaceutically active, medicine, preservative, diabetes active, pesticidal, active against rabies, antihistamine, anti-tussive, anti-caries, crystalline, antioxidant, etc.

It is important to remember that function of a material or even amount, e.g., pharmaceutical, etc., even if specific, e.g., diabetes active, etc., or 2% of a diabetes active ingredient, etc., does not meet any of the necessary criteria elaborated in 1 and 2 above. Function or amount therefore does not qualify as rendering an ingredient as "Designated".

RULES CONCERNING THE USE OF DOAI IN THE SCHEDULE

For purposes of Class 514, certain rules as to patent placement have been adopted. These rules pertain only to the subject matter in Class 514 and are not to be extrapolated to areas in Class 424.

The rules adopted pertaining to the use of the term "DOAI" are as follows:

(A) In those subclasses which recite a designated organic active ingredient (DOAI) in the title, the indented subclasses merely pertain to a further elaboration of the DOAI and do not relate to any other ingredient. An example of this is (subclass 497 in Class 514) which recites nitrogen containing and is indented under (subclass 496) which recites mercury and which in turn is indented under (subclass 492) heavy metal containing DOAI. The meaning of (subclass 497) is that an active ingredient contains both nitrogen and mercury atoms as part of a single molecule.

(B) In those subclasses which recite "with" as in (subclass 168) under a specified DOAI, such use is consistent with the term as used in other classes in that, at least two separate materials must be present, one of which is the DOAI and the other "with" ingredient. The "with" ingredient need not have an active function for Class 514 unless the subclass specifically requires an "active with ingredient" as in subclass 154.

EXAMPLES OF PATENT PLACEMENT WITHIN THE CLASS

Patentee Claims

(A) A biocide and starch as a carrier. The original classification is with the starch in subclass 778, since a chemical atom of the biocide is not recited.

(B) 2% of a biocide and starch as a carrier. Same classification as in (A) above, since 2% is not considered sufficient to be DOAI.

(C) An organic phosphorus containing biocide and starch as carrier. Original classification is on the basis of the biocide since an atom is recited. Entirely proper to look at disclosure to see the type of phosphorus compound encompassed by the term "organic phosphorus".

(D) A synergistic mixture of two biocides at least one of which is formaldehyde classifiable in subclasses 694+. The disclosure recites that the other biocide can be a organic phosphorus compound classifiable in subclasses 75+. Since the claim has only one DOAI recited (i.e., formaldehyde) original classification is in the formaldehyde species.

(E) A synergistic mixture of two biocides one of which is formaldehyde and the other is malathion. Formaldehyde is classified in subclass 694 and malathion is classified in subclass 122. The original is classified with malathion in subclass 122 as per normal classification rules.

RULES CONCERNING PLACEMENT OF SALTS WITHIN CLASS 514 AND SEARCH THEREFOR

Classification Practice

(A) Inorganic salts of organic materials are considered as organic and classified with the organic materials only, even when the organic material is not a DOAI by definition (see Glossary). No weight in the classification system is given to the inorganic material. However, when the inorganic segment of the salt is specifically claimed or disclosed as the only active segment of the salt molecule original classification is proper on the basis of the inorganic segment and cross-referenced to the organic material.

Example 1. R--R. SO_4

classified on the basis of

R--R

segment only

Example 2 Organic. SO_4

or

Organic pesticide. SO_4 classified on the basis of the disclosed organic or organic pesticide material only.

Example 3. Organic. SO_4

or

Amine. SO_4

Wherein activity is recited only in the SO_4 segment, original classification is with SO_4 segment, cross-reference is highly desirable with the disclosed organic or amine material.

(B) When a nonsalt DOAI material (see section 2, Glossary) as well as a salt thereof are claimed a prima facie nonrebuttal presumption is established that only the nonsalt active material is effective, even if the salt is specifically claimed and even if different 424 utility is noted for the specific salt. The claims are classified as original with the nonsalt DOAI material and a cross-reference to the salt area, even if higher in the classification schedule is unnecessary.

(C) When an organic salt of a DOAI is solely specifically claimed (i.e., nonsalt species of material is not claimed) the following classification rules will apply:

(1) Both segments of the solely claimed salt, i.e., anion and cation, are designated

(a) both segments are claimed or disclosed as active for the utility intended, or where no evidence is shown that a particular segment is active or inactive (both through claims or disclosure), the entire molecule will be considered a DOAI and classified on the basis of the first appearing segment in the schedule hierarchy, an example of this is the treatment of amine-critic acid: original classification with citric acid is proper since both segments of the molecule are active and since amine is classified lower in the 514 schedule hierarchy then citric acid or

(b) only one particular segment is claimed or disclosed as active, the original classification is to the designated active segment and cross-referenced to the nonactive segment area if said nonactive segment is higher in the classification schedule.

(2) Only one segment of the solely claimed salt, i.e., anion or cation, is designated, the original classification is with the active segment, even if the active segment is nondesignated, e.g., “an amine salt of an organic compound” wherein the pesticide or organic compound is specifically claimed or disclosed to be active for the utility intended. Classification is on the basis of the disclosed pesticide or the organic compound and cross-referenced to the amine area if the amine is higher in the schedule hierarchy than the disclosed species of the pesticide or organic compound. However, when the nondesignated segment is claimed as “a pharmaceutically acceptable acid (or base or equivalent thereof), e.g., “an amine salt of a therapeutically acceptable or compatible acid”, no weight is given to the “acceptable or compatible acid” and classification is based only on the designated segment, i.e., the amine.

Examination Practice

Due to the nature of the system of classification elabo-

rated above a search to be complete must at times entail searching in a multiplicity of subclasses.

(A) Claims drawn to solely a salt. Claims are classified and searched as in Classification Practice, C, above.

(B) Claims drawn to a nonsalt DOAI and also to a salt thereof, either in a dependant claim or in a Markush group. Classified only with the nonsalt species but searched in all salt species which are classified higher in the classification schedule than the nonsalt species.

The rules for determining Class placement of the Original Reference (OR) for claimed chemical compositions are set forth in the Class Definition of Class 252 in the section LINES WITH OTHER CLASSES AND WITHIN THIS CLASS, subsection COMPOSITION CLASS SUPERIORITY, which includes a hierarchical ORDER OF SUPERIORITY FOR COMPOSITION CLASSES.

CLASS 514 TERMS

The following frequently used terms in Class 514 are referenced in References to The Current Class, below. These terms have also been entered into the Index of the U.S. Patent Classification.

A

Acronycines; Allantion; Amantadine; Amphetamine; Ampicillin; Amprotropine; Aspirin; Atropine

B

Barbituric acid; Benzocaine; Benzomorphans; Biotin

C

Capsaicin; Cephalocporins; Chlorpheniramine; Cholecalciferol; Chrysanthemic acid; Cobalamin; Codeine; Colchicine; Cortisone; Cupreine; Cycloheximide; Cyproheptadine; Cysteine ester

D

DDT; DDVP; Dextromethorphan; Dyphylline

E

Ephedrine; Estradiol;

F

Fluspirilene

G

Glaucine; Glucamine; Griseofulvin

H

Hexachlorophene; Hydrocortisone

I

Isoniazid

M

Malathion; Melatonin; Meperidine; Methadone; Methapyrilene; Methomyl; Morphinans; Morphine;

N

Nandrolone; Niacinamide; Nortestosterone; Novocaine

O

Oxolinic acid

P

Parathion; Pencillin G; Perimidines; Phenylephrine; Phenyltoloxamine; Pilocarpine; Pimozide; Piromidic acid; Perdnisolone; Procaine; Progesterone; Psoralen; Pteridine; Purines

Q

Quinicine; Quinidine; Quinine; Quinoxaline

R

Riboflavins

S

Salinomycin; Scopolamine

T

Tartaric acid; Tetracycline; Theophilline; Thiamines; Tocopherois; Tryptophan; Tyrosine; Tripelennamine

U

Uracil

V

Vinblastine; Vincamine; Viquidil

SECTION III - SUBCLASS REFERENCES TO THE CURRENT CLASS

SEE OR SEARCH THIS CLASS, SUBCLASS:

52, Cobalamin
122, Malathion
132, Parathion
136, DDVP
152, Tetracycline
167, Cholecalciferol
165, Aspirin
178, Nortestosterone
179, Hydrocortisone
179, Cortisone
178+, Nandrolone
179, Perdnisolone
177, Progesterone
182, Estradiol
198, Ampicillin
199, Pencillin G
200+, Cephalocporins
249, Pteridine
249, Quinoxaline
251, Riboflavins
263.1 through 263.4 , Purines
263.34, Theophilline
263.36, Dyphylline
269, Perimidines
270, Barbituric acid
274, Uracil
276, Thiamines
278, Fluspirilene
282, Codeine
283, Vincamine
283, Vinblastine
285, Acronycines
282, Morphine
284, Glaucine
289, Dextromethorphan
289, Morphinans
291, Oxolinic acid
291, Scopolamine
295, Benzomorphans
303, Piromidic acid
305, Cupreine
305, Quinidine
305, Quinine
314, Quinicine
314, Viquidil
323, Pimozide
325, Cyproheptadine
328, Cycloheximide
330, Meperidine
336, Methapyrilene
352, Tripelennamine
354, Isoniazid
355, Niacinamide
357, Chlorpheniramine
387, Biotin
390, Allantion
397, Pilocarpine
415, Melatonin
419, Tryptophan
455, Psoralen
458, Tocopherois
460, Salinomycin
462, Griseofulvin
477, Methomyl
534, Amprotropine
534, Atropine
535, Benzocaine
535, Novocaine
535, Procaine
550, Cysteine ester
567, Tyrosine
572, Chrysanthemic acid
574, Tartaric acid
627, Capsaicin
629, Colchicine
648, Methadone
651, Phenyltoloxamine
653, Ephedrine
653, Phenylephrine
654, Amphetamine
656, Amantadine
669, Glucamine
735, Hexachlorophene
748, DDT

SECTION IV - GLOSSARY

The following terms have been used in a number of subclass titles throughout Class 514. For convenience, these often used terms have been arranged into a Glossary. When any of these terms is used in particular subclass titles in Class 514, their meaning is to be consistent with the meaning in this Glossary.

ACYCLIC

Denotes a compound devoid of any ring-containing moiety. Thus an acyclic chain may contain any atom as long as it is not a member of a ring.

ALCOHOL

Denotes an organic compound having the general structure C-OH wherein the carbon atom bound to the oxygen atom of the hydroxyl group cannot be doubled bonded to oxygen, sulfur, selenium, or tellurium or triple bonded to nitrogen. The terms as used herein includes phenols.

ALDEHYDE

Denotes an organic compound having the general structure -C-$[C(=O)]_n$ -H or H-$[C(=O)]_n$-H (n is 1 or more and wherein the carbon atom bonded to the-$[C(=O)]-_n$ group is not double bonded to oxygen, sulfur, selenium, or tellurium, or triple bonded to nitrogen.

ALICYCLIC RING OR RING SYSTEM

This term denotes a carbocyclic ring which is not a benzene ring or a polycyclo carbocyclic ring system which does not have a benzene ring as one of the cyclos.

AMINE-

Denotes an organic compound having a nitrogen atom single or double bonded to a carbon atom and wherein the carbon atom bonded to the nitrogen atom is devoid of a double bond to oxygen, sulfur, selenium, or tellurium or triple bonded to nitrogen. In addition, those compounds wherein the same nitrogen atom is bonded to a -C(=X)- group (X is O, S, Se, or Te) and to a carbon atom which is not double bonded to oxygen, sulfur, selenium, or tellurium, are not considered as being amines, e.g.,

-C-NH-C(X=)-

Although amides may be considered chemically as amines, it has been found expedient for this class to exclude compounds containing only amide nitrogen herefrom. Therefore, as used throughout this area, the term amide is not to be confused as being an amine. A compound, however, which contains a nitrogen atom bonded to a non -C(=X)- carbon atom and which contains either a nitrogen atom bonded to a -C(=X)- group or an amide group, is considered as being an amine.

AMINO NITROGEN

Denotes any nitrogen in an organic compound other than a nitrogen in an inorganic ion of an addition salt, a nitro (-NO_2) or nitroso (-NO). Component parts of an "adduct" will be considered to be attached to each other ionically except if it is clear that the mode of attachment is nonionic.

ARYL RING OR RING SYSTEM

This term denotes a benzene ring or a polycyclo carbocyclic ring system having a benzene ring as one of the cyclos.

ATTACHED DIRECTLY OR BONDED DIRECTLY

These terms are used to show that specified moieties are connected by bonds only.

ATTACHED INDIRECTLY

This term denotes that at least one atom, as well as bond, connects specified moieties.

BENZENE RING

This term includes in all cases except where there are explicit limitations to the contrary, substituted benzene rings, including substitution in the form of an additional fused or bridged ring or ring system.

BICYCLO RING SYSTEM

This term denotes a polycyclo ring system which contains exactly two rings.

CARBOCYCLIC

This term denotes a ring or ring system where all ring members are carbons.

CHAIN

This term denotes a plurality of atoms which connect specified groups or atoms. The atoms of the chain must be nonionically attached to each other and to the specified groups or atoms. If the chain may not include any ring members it will be designated as acyclic. When the chain may include ring members the title will state that the chain may include a ring. The chain ends where it attaches to the specified groups or atoms and does not

include any part of them. The chain may have substituents but the substituents are not part of the chain.

DESIGNATED ELEMENTAL NONACTIVE INGREDIENT

Denotes an elemental material either metallic or nonmetallic and which is identified by its chemical nature, e.g., iron, silver, etc., or is identified in a generic manner, e.g., alkali metal atom, etc. The term nonactive as used herein denotes the absence of any physiological, pharmacological or biological affect attributed to the elemental material.

DESIGNATED INORGANIC NONACTIVE INGREDIENT

Denotes an inorganic compound which is identified by at least one chemical atom, e.g., sodium-containing, etc., or is identified as a generic type of inorganic chemical compound, e.g., alkali metal-containing, etc. The term nonactive as used herein denotes the absence of any physiological, pharmacological or biological affect attributed to the inorganic material.

DESIGNATED ORGANIC ACTIVE INGREDIENT (DOAI) DENOTES

(1) The active ingredient is identified by at least one chemical atom, e.g., organic phosphorus compound, etc., or (2) The active ingredient is identified as a generic type of chemical atom, e.g., alcohol, ether, etc. The term active denotes the presence of a physiological, pharmacological or biological affect.

DESIGNATED ORGANIC NONACTIVE INGREDIENT DENOTES

(1) A nonactive ingredient is identified by at least one chemical atom or (2) the nonactive ingredient is identified as a generic type of chemical compound, e.g., starch, etc. The term nonactive denotes the absence of any physiological, pharmacological or biological affect attributed to the organic material.

ETHER

Denotes an organic compound having oxygen bonded directly to two carbon atoms, which carbons cannot be double bonded to oxygen, sulfur, selenium, or tellurium, or triple bonded to nitrogen.

FATTY ACID

Denotes an aliphatic monocarboxylic acid having an unbroken chain of at least seven carbon atoms bonded to the carboxyl group.

FUSED OR BRIDGED RING SYSTEM

Denotes a ring system having at least two rings which (a) share with each other two adjacent ring atoms, or (b) share with each other three or more ring atoms and wherein each ring having shared atoms is either a heterocyclic ring or a carbocyclic ring.

HALOGENATED HYDROCARBON

Denotes a compound containing only carbon, hydrogen, and halogen, or only carbon and halogen.

HETERO RING

Denotes the presence of one or more carbon atoms covalently bonded in a closed ring with at least one atom of oxygen, nitrogen, sulfur, selenium or tellurium and having no other atoms in the ring.

INCLUDING HYDROGENATED

Denotes that a ring system which by definition has ring unsaturation possesses a degree of saturation which may be different than the ring system definition would normally indicate.

KETONE (INCLUDING KETENE)

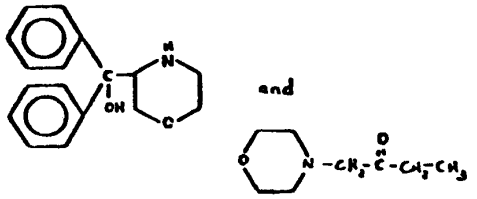
Denotes an organic compound having the general structure -C-$[C(=O)]_n$ -C- (n is 1 or more) and wherein the carbon atoms bonded to the-$[C(=O)]_n$ group are not double bonded to oxygen, sulfur, selenium, or tellurium. Ketone as used throughout includes ketene.

NONIONIC BONDING

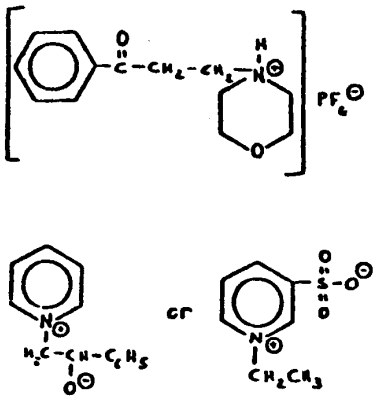
As used in regard to bonding or attachment of specified moieties denotes the absence of ionic bonding between the moieties. If the moieties are attached directly, the bonds between them must be covalent or coordinate. If the moieties are attached indirectly, each atom of the connecting chain must be attached by covalent or coordinate bonding to another atom of the connecting chain or to one of the moieties. However, the connecting chain may have substituents thereon which include ionic bonding. Some examples will be given of compounds which could be classified in a subclass having the fol-

lowing titles: "Oxygen attached indirectly to the six-membered hetero ring by nonionic bonding".

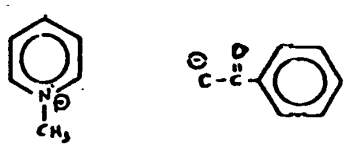
Two typical compounds which would by classified in such a subclass are:



The following three compounds would also be classified in such a subclass but they are not typical.



The three atypical examples are considered to meet the title since there is a chain of atoms between the hetero ring and the oxygen in which each atom is connected to the hetero ring, the oxygen, or another atom of the chain by nonionic bonding. The ionic bonding between the ring nitrogen and the oxygen in the two betaine inner salts is additional and does not keep the betaines out of such a subclass. However, a structure, such as



is excluded since no oxygen is attached to the six−membered hetero ring by nonionic bonding. The oxygen of an N−oxide, for example,

is considered attached to the ring by nonionic bonding (coordinate bonding).

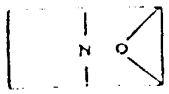
POLYCYCLO RING SYSTEM

This term denotes a compound which contains fused or bridged rings. The polycyclo ring system must contain at least two rings and each ring of the system must share two or more of its atoms with another ring of the system. All ring members must be attached to each other by nonionic bonding. The polycyclo ring system is usually only a moiety within a compound. Indents such as bicyclo and tricyclo are meant to limit the number of rings or cyclos in the polycyclo ring system to exactly two rings and three rings, respectively.

For polycyclo systems having bridges it should be remembered that the system is regarded as composed only of the smallest number of smallest rings that will account for all atoms and valences. This is in accord with the nomenclature employed by The Ring Index. Second Edition, (1960).

An example of the use of this system of nomenclature is as follows. The compound (Ia)

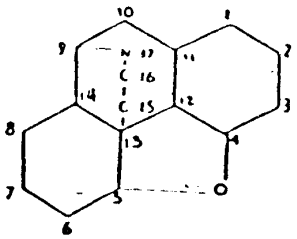
can also be written as (Ib)



Said compound should be considered as a ($C_4N-C_4N-C_2O$) tricyclo system as in (Ia), rather than as a (C_4N-C_4 NO$-C_2O$) tricyclo system as possibly seen in (Ib). The former interpretation is the one with the smallest number of smallest rings that accounts for all atoms and valences. Some additional illustrative examples of the principle set forth above are: (II)

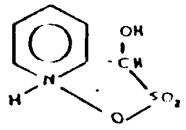
Compound II is considered as a bicyclo system composed of a C_2N_2O ring and a C_4O ring; it is <u>not</u> considered a diazine ring for classification. Further, 3–aza–bicyclo [3.1.0] hexane

is classified with pyrrolidines considering the structure a five–membered ring and a three–membered ring rather than with piperidines which would require considering it a six–membered ring. However, see page XI of The Ring Index for an explanation of "valence bridges".

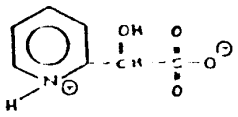


Similarly, the structure is considered to be a pentacyclo ring system having three six–membered carbocyclic rings, one five–membered hetero ring consisting of one ring oxygen and four ring carbons, and one six–membered ring consisting of one ring nitrogen and five ring carbons.

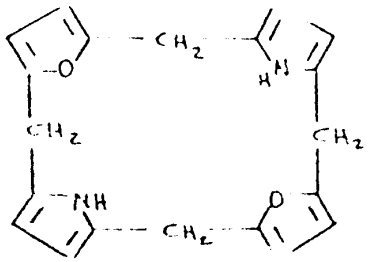
Betaine inner salts are sometimes shown as ring structures, e.g.,



However, this is not a polycyclo ring system because nonionic bonding does not exist between the N and O atoms. The bonding between them is ionic and such a compound is classified as:



Additionally, a structure of the type:

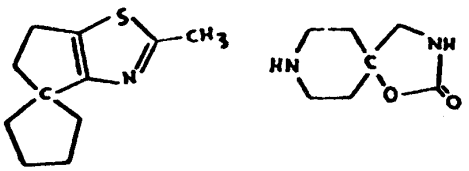


is considered to be a polycyclo ring system composed of five rings:

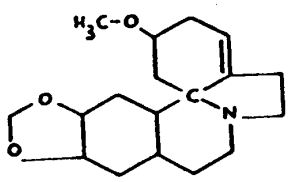
$C_4N-C_4O-C_4N-C_40-C_{12}N_2O_2$.

SPIRO AND SPIRO RING SYSTEM

These terms denote the sharing of one common ring member only by exactly two rings. The following two structures are illustrative:

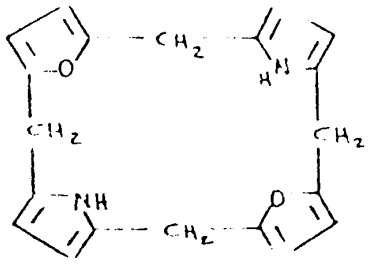


A structure such as:



is excluded because the carbon atom shared by two rings is also shared by a third ring.

Additionally, a structure of the type:

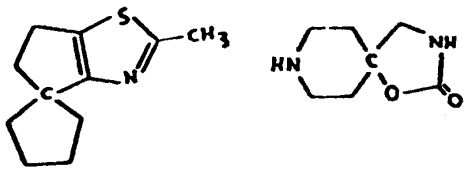


is considered to be a polycyclo ring system composed of five rings:

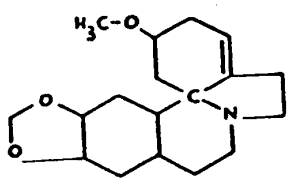
$C_4N-C_4O-C_4N-C_40-C_{12}N_2O_2$.

SPIRO AND SPIRO RING SYSTEM

These terms denote the sharing of one common ring member only by exactly two rings. The following two structures are illustrative:

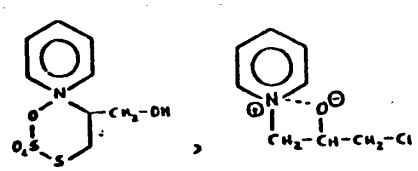


A structure such as:

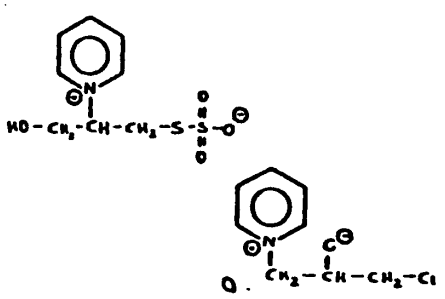


is excluded because the carbon atom shared by two rings is also shared by a third ring.

The common ring member must be attached to two ring members of each of the rings by nonionic bonding. Therefore, structures such as:



are also excluded from consideration as "spiro ring systems" because ionic bonding exists between the hetero ring atom and an acyclic atom (an oxygen atom in both of these cases) in the formation of these betaine inner salts. These structures will be considered and classified as:



TRICYCLO RING SYSTEM

This term denotes a polycyclo ring system which contains exactly three rings.

SUBCLASSES

1 **DESIGNATED ORGANIC ACTIVE INGREDIENT CONTAINING (DOAI):**
Subject matter under Class 424 definition which contains a designated organic active ingredient, e.g., coal tar, coal tar oil, etc.

(1) Note. See Class Definition, Glossary, for the definition of "DOAI".

SEE OR SEARCH THIS CLASS, SUBCLASS:
731, for a composition containing creosote or a coal tar acid.
800, and 801-809, for art collections pertaining to subclasses 1-21.

SEE OR SEARCH CLASS:
208, Mineral Oils: Processes and Products, subclass 2 for a coal tar or coal tar oil which has the property of killing, repelling or preventing the growth of insects, fungi or bacteria and the process of preparing same.

2 **Peptide containing (e.g., protein, peptones, fibrinogen, etc.) DOAI:**
This subclass is indented under subclass 1. Subject matter which contains a protein or its reaction product, e.g., peptides, peptones, fibrinogen, etc., wherein the protein molecule is not degraded to the constituent amino-acids.

(1) Note. The term peptide unit used herein is intended to mean the group N-C-(=O) or beta-alanine.

SEE OR SEARCH THIS CLASS, SUBCLASS:
183+, for ergot.
192+, for penicillin.
200+, for cephalosporins.

SEE OR SEARCH CLASS:
260, Chemistry of Carbon Compounds, subclass 112 for a protein, per se, of unknown structure and method of preparing same; and subclass 112.5 for a protein, per se, of known structure.
930, Peptide or Protein Sequence, subclasses 10+ for peptide or protein sequences or four or more amino acids.

3 **Insulin or derivative:**
This subclass is indented under subclass 2. Subject matter identical to the extract of the pancreas, known as insulin or a derivative thereof, in which neither a peptide chain nor a disulfide link between chains is broken.

(1) Note. While the position and/or kind of amino acids in the chain(s) may vary (depending on the animal from which derived), it appears that insulin contains at least an "A" chain of 21 acid units linked by disulfide moieties to a "B". An additional disulfide moiety bridges the 6 and 11 positions of chain A.

SEE OR SEARCH THIS CLASS, SUBCLASS:

110, for an animal extract obtained from the pancreas.

SEE OR SEARCH CLASS:

260, Chemistry of Carbon Compounds, subclass 112.5 for a polypeptide of known chemical structure, and subclass 112.7 for insulin, per se.

4 With an additional active ingredient:

This subclass is indented under subclass 3. Subject matter which contains insulin and an additional active ingredient.

(1) Note. For the subclass an organic potentiator for insulin is considered an active ingredient.

5 Iodine containing:

This subclass is indented under subclass 2. Subject matter in which the peptide moiety contains iodine or the peptide moiety is reacted with or complexed to iodine containing compound.

SEE OR SEARCH CLASS:

930, Peptide or Protein Sequence, subclass 22 for peptide or protein sequences containing an amino acid modified with a radioactive iodine and subclass 23 for sequences containing an amino acid modified with a regular iodine.

6 Heavy metal containing (e.g., hemoglobin, etc.):

This subclass is indented under subclass 2. Subject matter which contains a heavy metal atom.

(1) Note. See Glossary for a definition of the term heavy metal.

SEE OR SEARCH CLASS:

260, Chemistry of Carbon Compounds, subclasses 113+ for known polypeptide compound containing a heavy metal atom.

930, Peptide or Protein Sequence, subclass 25 for peptide or protein sequences containing an amino acid modified with a heavy metal.

7 Phosphorus containing:

This subclass is indented under subclass 2. Subject matter which contains phosphorus in the peptide compound.

8 Glycoprotein (carbohydrate containing):

This subclass is indented under subclass 2. Subject matter which contains a carbohydrate or derivative thereof attached to the peptide.

9 Cyclopeptide:

This subclass is indented under subclass 2. Subject matter wherein the amino acid chain forms a cyclic structure; said cyclo structures can be formed by peptide bonding, disulfide bonding, hydrocarbon bonding or other types of connection that define the cyclo structures as having at least a dipeptide as an integral part thereof.

SEE OR SEARCH CLASS:

930, Peptide or Protein Sequence, subclass 260 for peptides or proteins with intrachain cysteine-cysteine bridges and subclass 270 for other cyclic peptides or proteins.

10 Bicyclic:

This subclass is indented under subclass 9. Subject matter wherein a compound has two cyclic groups containing an amino acid chain.

11 Monocyclic:

This subclass is indented under subclass 9. Subject matter wherein a compound has only one cyclic group containing an amino acid chain.

12 25 or more peptide repeating units in known peptide chain structure:

This subclass is indented under subclass 2. Subject matter wherein a peptide chain has 25 or more peptide units in an uninterrupted chain.

13 16 to 24 peptide repeating units in known peptide chain:

This subclass is indented under subclass 2. Subject matter which contains as uninterrupted peptide chain of 16 to 24 peptide units.

14 **12 to 15 peptide repeating units in known peptide chain:**
This subclass is indented under subclass 2. Subject matter which contains an uninterrupted peptide chain of 12 to 15 peptide units.

15 **9 to 11 peptide repeating units in known peptide chain:**
This subclass is indented under subclass 2. Subject matter which contains an uninterrupted peptide chain of 9 to 11 peptide units.

16 **7 or 8 peptide repeating units in known peptide chain:**
This subclass is indented under subclass 2. Subject matter which contains an uninterrupted peptide chain of 7 or 8 peptide units.

17 **5 or 6 peptide repeating units in known peptide chain:**
This subclass is indented under subclass 2. Subject matter which contains an uninterrupted peptide chain 5 or 6 peptide units.

18 **3 or 4 peptide repeating units in known peptide chain:**
This subclass is indented under subclass 2. Subject matter which contains an uninterrupted peptide chain of 3 or 4 peptide units.

19 **2 peptide repeating units in known peptide chain:**
This subclass is indented under subclass 2. Subject matter which contains an uninterrupted peptide chain of 2 peptide units.

20 **Guanidine containing:**
This subclass is indented under subclass 19. Subject matter wherein the peptide compound contains the guanidine group.

21 **Produced by or extracted from animal tissue:**
This subclass is indented under subclass 2. Subject matter which is derived from animal material.

SEE OR SEARCH THIS CLASS, SUBCLASS:
800, and 801-809, for art collections pertaining to subclasses 1-21.

22 **Lignin or derivative DOAI:**
This subclass is indented under subclass 1. Subject matter wherein the organic active ingredient is lignin or a reaction derivative thereof, e.g., lignin sulfonate, etc.

(1) Note. Lignin is a noncarbohydrate, polymeric substance found in wood. It is isolated directly from wood or wood products or from the treatment of wood, e.g., waste sulfite liquor or black liquor. The structure of the lignin monomer is not completely known.

23 **Carbohydrate (i.e., saccharide radical containing) DOAI:**
This subclass is indented under subclass 1. Subject matter wherein the organic active ingredient is a saccharide or polysaccharide, the monomeric saccharide radical units of which contain at least five carbon atoms, or their reaction products wherein the carbon skeleton of the saccharide or polysaccharide of the unit is not destroyed.

(1) Note. Included herein is cellulose, cellulose derivatives, starch, starch derivatives, tannins, O-glycosides, N-glycosides and S-glycosides.

(2) Note. Alcohols and acids corresponding to carbohydrates are excluded.

(3) Note. Cascara sagrada is excluded herefrom and is classified with plant extracts. See Search Notes below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
251, for a composition containing riboflavin DOAI.

SEE OR SEARCH CLASS:
424, Drug, Bio-Affecting and Body Treating Compositions, subclasses 725 through 779 for plant extracts.

24 **S-glycoside:**
This subclass is indented under subclass 23. Subject matter wherein the saccharide is a thioacetal derivative of a cyclic form of sugars in which the hydrogen atom of the hemithioacetal

sulfhydryl group has been replaced by an alkyl, aralkyl or aryl group.

(1) Note. A S-glycoside is a compound having a sugar moiety connected to an aglycone moiety via sulfur.

(2) Note. An aglycone is a noncarbohydrate material, e.g., benzene, indoxyl, alkyl, anthracene, etc.

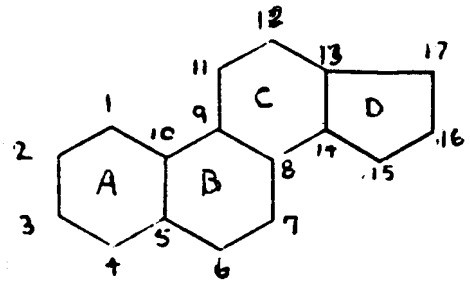
(3) Note. The cyclic sugars referred to in the definition are normally pyranoses or furanoses.

(4) Note. Glycosides derived from aldoeses are referred to as aldosides, and those ketoses are ketosides.

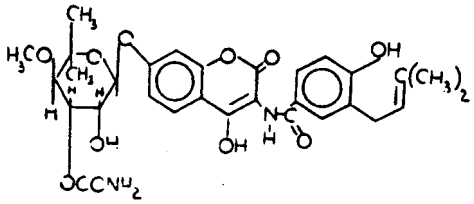
25 O-glycoside:
This subclass is indented under subclass 23. Subject matter wherein the saccharide is an acetal derivative of a cyclic form of sugars in which the hydrogen atom of the hemiacetal hydroxyl has been replaced by an alkyl, aralkyl or aryl group.

(1) Note. An O-glycoside is a compound having a sugar moiety connected to an aglycone moiety via oxygen.

26 Cyclopentanohydrophenanthrene ring system:
This subclass is indented under subclass 25. Subject matter wherein an aglycone moiety of the glycoside contains a cyclopentanohydrophenanthrene nucleus, i.e.,



27 Oxygen of the saccharide radical bonded directly to a nonsaccharide hetero ring or a polycyclo ring system which contains a nonsaccharide hetero ring:
This subclass is indented under subclass 25. Subject matter wherein a nonsaccharide hetero ring or a fused or bridged ring system which contains a nonsaccharide hetero ring is attached to an oxygen of the saccharide radical, e.g.,



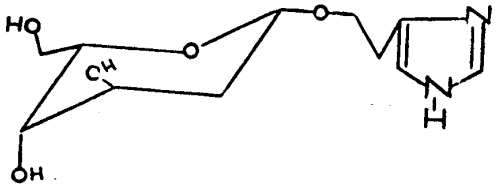
28 The hetero ring has 8 or more ring carbons:
This subclass is indented under subclass 27. Subject mater wherein the nonsaccharide hetero ring has eight or more ring carbon members.

29 The hetero ring has exactly 13 ring carbons (e.g., erythromycin, etc.):
This subclass is indented under subclass 28. Subject matter wherein the nonsaccharide hetero ring has exactly 13 carbon atoms, e.g., erythromycin, etc.

30 The hetero ring has exactly 15 ring carbons:
This subclass is indented under subclass 28. Subject matter wherein the nonsaccharide hetero ring has exactly 15 carbon atoms.

31 The hetero ring has 20 or more ring carbons (e.g., nystatin, etc.):
This subclass is indented under subclass 28. Subject matter wherein the nonsaccharide hetero ring has 20 or more ring carbon atoms, e.g., nystatin, etc.

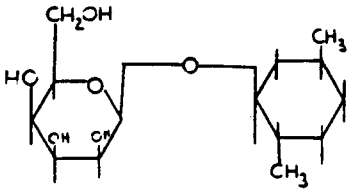
32 Oxygen of the saccharide radical bonded to a nonsaccharide hetero ring by acyclic carbon bonding:
This subclass is indented under subclass 25. Subject matter wherein a hetero ring or polycyclo ring system which contains a nonsaccharide hetero ring is directly linked to an oxygen of the saccharide radical directly through only acyclic carbon bonding, e.g.,



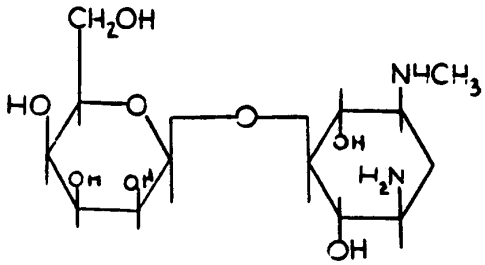
33 **Oxygen of the saccharide radical bonded directly to a polyclo ring system of three or more carbocyclic rings:**
This subclass is indented under subclass 25. Subject matter wherein the oxygen of the saccharide radical is directly bonded to a polycyclo ring system of three or more carbocyclic rings.

34 **Oxygen of the saccharide radical bonded directly to a polycyclo ring system of four carbocyclic rings (e.g., daunomycin, etc.):**
This subclass is indented under subclass 33. Subject matter wherein the oxygen of the saccharide radical is directly bonded to a polycyclo ring system of exactly four carbocyclic rings.

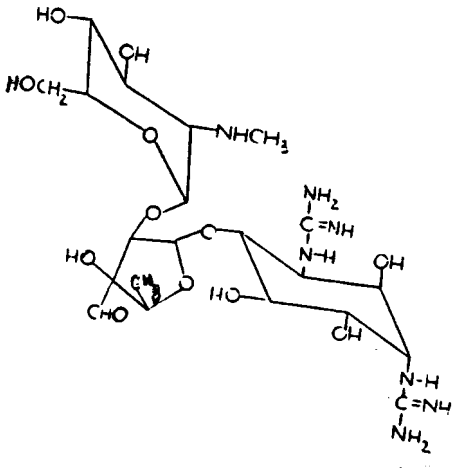
35 **Oxygen of the saccharide radical bonded directly to a cyclohexyl ring:**
This subclass is indented under subclass 25. Subject matter wherein a cyclohexyl radical is bonded directly to an oxygen of the saccharide radical, e.g.,



36 **Two or more nitrogen atoms bonded directly to the cyclohexyl ring:**
This subclass is indented under subclass 35. Subject matter wherein two or more nitrogen atoms are bonded directly to the cyclohexyl radical, e.g.,

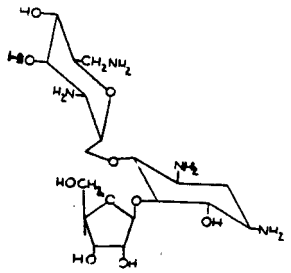


37 **The nitrogen atoms are in N-C(=N)-N groups (e.g, streptomycin, etc.):**
This subclass is indented under subclass 36. Subject matter wherein all the nitrogen atoms which are bonded directly to the cyclohexyl group are part of a N-C(=N)-N group, e.g.,



, etc.

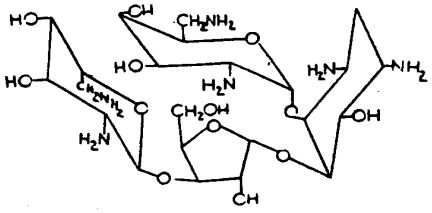
38 **Two saccharide radicals bonded through only oxygen to adjacent ring carbons of the cyclohexyl ring:**
This subclass is indented under subclass 36. Subject matter wherein the cyclohexyl radical is separately, independently and directly bonded through only oxygen of two saccharide radicals at adjacent ring carbons, e.g.,



, etc.

39 Three or more saccharide radicals (e.g., neomycin, etc.):

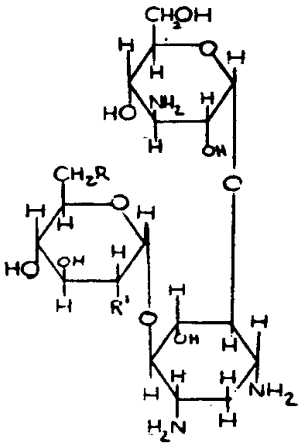
This subclass is indented under subclass 38. Subject matter wherein the cyclohexyl radical is bonded directly or indirectly to three or more saccharide radicals, e.g.,



, etc.

40 Two saccharide radicals bonded through only oxygen to 4- and 6- positions of the cyclohexyl ring:

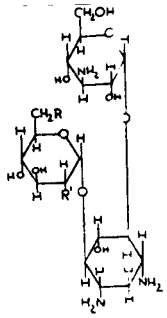
This subclass is indented under subclass 36. Subject matter wherein the cyclohexyl radical is separately, independently and directly bonded through only oxygen of two saccharide radicals at the 4- and 6- position carbons of the cyclohexyl ring, e.g.,



, etc.

41 Kanamycin or derivative:

This subclass is indented under subclass 40. Subject matter wherein the organic active ingredient is Kanamycin or a derivative thereof, i.e., as illustrated below, wherein R is NH_2 and R' is NH_2 or OH.



Kanosamin, deoxystreptamine

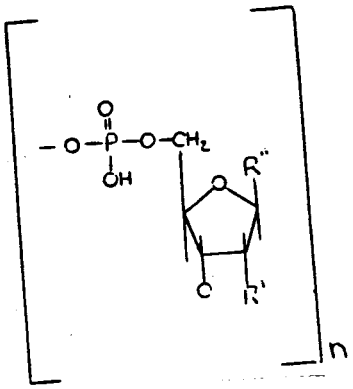
42 N-glycoside:

This subclass is indented under subclass 23. Subject matter wherein the saccharide is a glycosidic derivative or the cyclic form of saccharides or polysaccharides in which an aglycone portion is attached through nitrogen to the saccharide moiety by substituting it for the hemiacetal hydroxyl of the sugar.

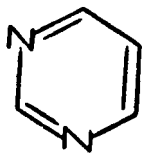
(1) Note. The aglycone can be noncyclic.

43 Nitrogen containing hetero ring:
This subclass is indented under subclass 42. Subject matter wherein the aglycone portion contains a nitrogen containing hetero ring.

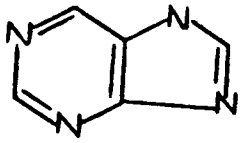
44 Polynucleotide (e.g., RNA, DNA, etc.):
This subclass is indented under subclass 43. Subject matter which has the following structure, illustrated below, wherein n is a whole number equal or greater than two, R' is H or OH and R" is purine or pyrimidine or a substituted purine or pyrimidine.



(1) Note. Substituted pyrimidine or purine includes only those derivatives which are substituted on rather than in the respective ring position, i.e., illustrated below, is present in the structure. The internal ring bonding may be altered by tautomerism or by the addition of substituents without excluding a compound from this subclass.

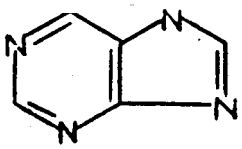


Or

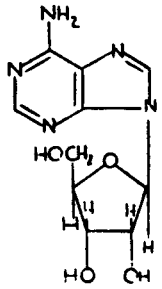


SEE OR SEARCH CLASS:
536, Organic Compounds, appropriate subclasses for nucleosides, nucleotides and polynucleotides like RNA or DNA compounds as well as chemical methods for synthesizing these compounds. Search specifically subclasses 23.1+ for fragments of DNA which could have utility in recombinant processes or gene therapy and subclasses 26.4+ for vitamin B-12 and its derivatives.

45 Purines (including hydrogenated) (e.g., adenine, guanine, etc.):
This subclass is indented under subclass 43. Subject matter wherein the hetero ring is a purine, as illustrated below, or substituted purine.



46 Adenosine or derivative:
This subclass is indented under subclass 45. Subject matter wherein the compound is adenosine, illustrated below, or derivative thereof.

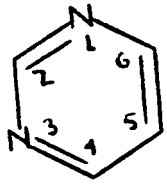


47 **Phosphorus containing:**
This subclass is indented under subclass 46. Subject matter wherein the adenosine or derivative thereof contains phosphorus.

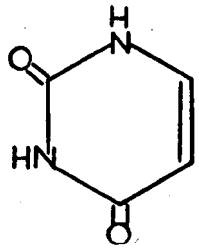
48 **Phosphorus containing:**
This subclass is indented under subclass 45. Subject matter wherein the purine compound contains phosphorus.

49 **Pyrimidines (including hydrogenated) (e.g., cytosine, etc.):**
This subclass is indented under subclass 43. Subject matter wherein the hetero ring is a pyrimidine, as illustrated below, or substituted pyrimidine.

(1) Note. The structure below shows the position numbering used for 1, 3-diazines.



50 **2, 4-diketone pyrimidine or derivative (e.g., uracil, etc.):**
This subclass is indented under subclass 49. Subject matter wherein oxygen atoms are directly double bonded to the 2 and 4 positions of the pyrimidine ring, e.g.,



, etc.

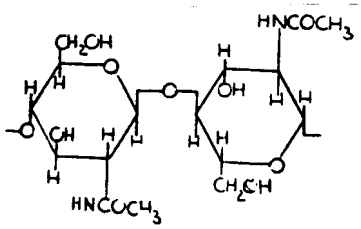
51 **Phosphorus containing:**
This subclass is indented under subclass 50. Subject matter wherein the 2, 4-diketone pyrimidine compound contains phosphorus.

52 **Phosphorus containing (e.g., vitamin B12, etc.):**
This subclass is indented under subclass 43. Subject matter which contains phosphorus.

53 **Disaccharide:**
This subclass is indented under subclass 23. Subject matter wherein the organic active ingredient contains two saccharide radicals bonded via a glycosidic linkage and which on hydrolysis yields two units of monosaccharides (e.g., sucrose, lactose, maltose, etc.).

54 This subclass is indented under subclass 23. Subject matter wherein the organic active ingredient contains more than two saccharide radicals directly or indirectly bonded together.

55 **Chitin or derivative:**
This subclass is indented under subclass 54. wherein the polysaccharide has the following repeating units:

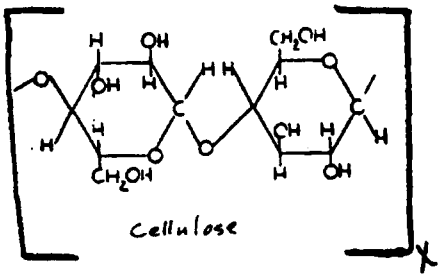


Repeating unit of chitin.

56 Heparin or derivative:
This subclass is indented under subclass 54. Subject matter wherein the polysaccharide has the following repeating unit, illustrated below, wherein the degree of sulfation of the individual components in the polysaccharide chain, and derivatives thereof.

(1) Note. Heparin is a substance which can be found in various tissues of mammals, especially the lung, spleen, liver and muscle, and has been used medicinally for coagulation of blood and metabolism of lipids.

57 Cellulose or derivative:
This subclass is indented under subclass 54. Subject matter wherein the polysaccharide consists of repeating glucose units having the following structure:



58 Dextrin or derivative:
This subclass is indented under subclass 54. Subject matter wherein the polysaccharide consists of various gummy polysaccharides produced by thermal or acid degradation of starch, and derivatives of such compounds.

(1) Note. Dextrins are carbohydrates, intermediate between starch and sugars. Degradation of dextrins yields maltose and glucose.

(2) Note. Derivatives of dextrins which remain gummy polysaccharides are classified herein.

59 Dextran or derivative:
This subclass is indented under subclass 54. wherein the polysaccharide is composed of D-glucose units which are linked by 1, 6 glucosidic bonds.

(1) Note. Dextrin and dextrine are not variant spelling of "Dextran", instead they are respectively a starch hydrolysis product and a variant spelling of dextrin.

(2) Note. Controlled hydrolysis of native dextran yields clinical dextran of lower molecular weight which is useful as a blood plasma substitute.

60 Starch or derivative:
This subclass is indented under subclass 54. Subject matter wherein the polysaccharide has amylose and amylopectin as their main components.

(1) Note. Starches are heterogeneous in that the amylose and amylopectin occur in different ratios to each other.

(2) Note. Starches yield dextrins upon extensive thermal of acid degradation and yield glucose upon completed hydrolysis.

61 Tri- or tetrasaccharide:
This subclass is indented under subclass 23. Subject matter wherein a glucose moiety is substituted with one or more amino groups, or derivative thereof.

62 Silicon containing DOAI:
This subclass is indented under subclass 23. Subject matter wherein a glucose moiety is substituted with one or more amino groups, or derivative thereof.

63 Silicon containing DOAI:
This subclass is indented under subclass 1. Subject matter in which the organic active ingredient contains silicon.

64 Boron containing DOAI:
This subclass is indented under subclass 1. in which the organic active ingredient contains boron.

65 Pyrethrum plant derived material or plant derive rotenone compound containing DOAI:
This subclass is indented under subclass 1. Subject matter which contains pyrethrum plant derived material or plant derived rotenone compound containing material, e.g., ground pyrethrum flowers or extract of cube root or derris root, etc.

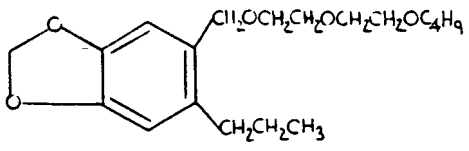
(1) Note. This subclass does not contain chemically identified derivatives of naturally occurring pyrethrum plant derived material or plant derived rotenone containing material since such derivatives are classified on the basis of the chemical structure.

(2) Note. Synthetically produced active compounds which would be identical with the active constituents of pyrethrum or rotenone containing plant such as derris root, cube root are not classified herein but are classified of the chemical structure of the synthetically produced compound. See, for example, subclass 531 for allethrins.

(3) Note. The active constituents of pyrethrum includes pyrethrins I and II, cinerins I and II and jasmolins I and II.

66 With heterocyclic compound:
This subclass is indented under subclass 65. Subject matter which contains a heterocyclic compound in addition to the pyrethrum derived material or plant derived rotenone compound.

67 Methlenedioxyphenyl group containing (e.g., piperonyl butoxide, etc.):
This subclass is indented under subclass 66. Subject matter which contains methylenedioxyphenyl group, e.g.,



, etc.

68 With carboxylic acid ester:
This subclass is indented under subclass 65. Subject matter which contains a carboxylic acid ester in addition to the pyrethrum derived material or plant derived rotenone compound.

69 With carboxylic acid metal salt:
This subclass is indented under subclass 65. Subject matter which contains a carboxylic acid metal salt in addition to the pyrethrum derived material or plant derived rotenone compound.

70 With organic nitrogen containing compound:
This subclass is indented under subclass 65. Subject matter which contains a nitrogen containing organic compound in addition to the pyrethrum derived material or plant derived rotenone compound.

71 Sulfur containing organic nitrogen compound:
This subclass is indented under subclass 70. Subject matter wherein the nitrogen containing organic compound contains sulfur.

72 With organic oxygen containing compound:
This subclass is indented under subclass 65. Subject matter which contains oxygen containing organic compound in addition to the pyrethrum derived material or plant derived rotenone compound.

73 Phosphorus or halogen containing organic oxygen compound:
This subclass is indented under subclass 72. Subject matter wherein the oxygen containing organic compound contains phosphorus or halogen.

74 With hydrocarbon or halohydrocarbon:
This subclass is indented under subclass 65. Subject matter which contains hydrocarbon or halohydrocarbon in addition to the pyrethrum derived material or plant derived rotenone compound.

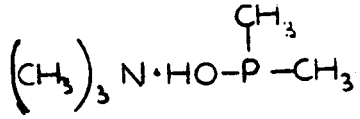
75 Phosphorus containing other than solely as part of an inorganic ion in an addition salt DOAI:

This subclass is indented under subclass 1. Subject matter wherein the organic active ingredient contains a phosphorus atom.

(1) Note. Inorganic phosphorus salts of the organic active ingredient are excluded herefrom and classified with the active moiety.

76 Amine addition salt of organic phosphorus containing acid:

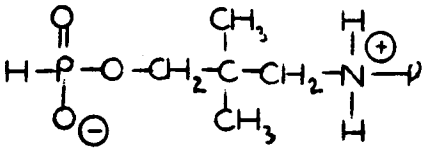
This subclass is indented under subclass 75. Subject matter wherein the organic active ingredient is an amine addition salt of the phosphorus compound, wherein said salt forming group is the nitrogen atom of said amine, e.g.,

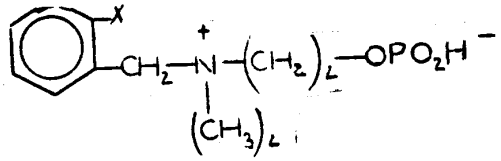


, etc.

77 Inner salt (e.g., betaine, etc.):

This subclass is indented under subclass 75. Subject matter wherein the organic active ingredient is an inner salt, e.g.,

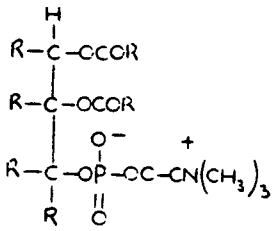




, etc.

78 Lecithins:

This subclass is indented under subclass 77. Subject matter wherein the inner salt contains the following structurewherein R is an organic radical.



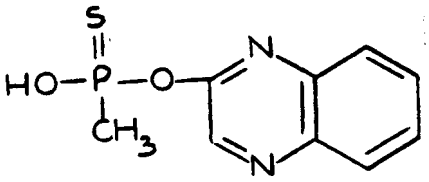
, etc.

79 Nitrogen containing hetero ring:

This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound contains a heterocyclic ring containing nitrogen as a hetero atom.

80 Polycyclo ring system having a ring nitrogen in the system:

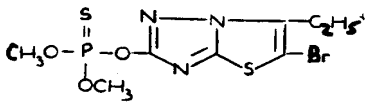
This subclass is indented under subclass 79. Subject matter in which the organo-phosphorus compound contains a polycyclo ring system (bridged or fused), e.g.,



, etc.

81 Nonshared hetero atoms in at least two rings of the polycyclo ring system:

This subclass is indented under subclass 80. Subject matter in which the organo-phosphorus compound contains a polycyclo ring system which contains nonshared hetero atoms in at least two rings of the polycyclo ring systems, e.g.,



, etc.

82 Quinolinyl or isoquinolinyl (including hydrogenated):
This subclass is indented under subclass 80. Subject matter in which the organo-phosphorus compound contains a quinolinyl or isoquinolinyl group, (including hydrogenated).

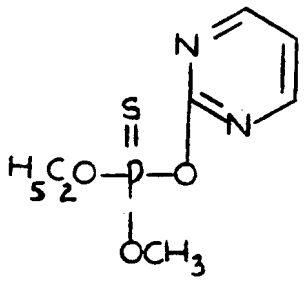
83 Hetero ring is three-membered consisting of one nitrogen and two carbons:
This subclass is indented under subclass 79. Subject matter in which the organo-phosphorus compound contains a three-membered heterocyclic ring which contains one nitrogen and two carbons.

84 Hetero ring is six-membered consisting of three nitrogens and three carbons:
This subclass is indented under subclass 79. Subject matter in which the organo-phosphorus compound contains a six-membered heterocyclic ring which consists of three nitrogens and three carbons.

85 Hetero ring is six-membered consisting of two nitrogens and four carbons:
This subclass is indented under subclass 79. Subject matter in which the organo-phosphorus compound contains a six-membered heterocyclic ring which consists of two nitrogens and four carbons.

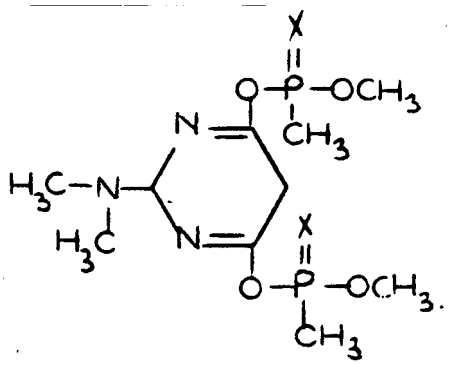
86 Nitrogen atoms occupy 1 and 3- positions:
This subclass is indented under subclass 85. Subject matter wherein the nitrogen atoms are at the 1- and 3- position of the six member ring, i.e., 1, 3-diazines.

87 PX- bonded directly to 1, 3-diazine at 2-position (X is chalcogen):
This subclass is indented under subclass 86. Subject matter in which a PX- is bonded directly to the 1,3-diazine at the 2-position. (X is chalcogen), e.g.,



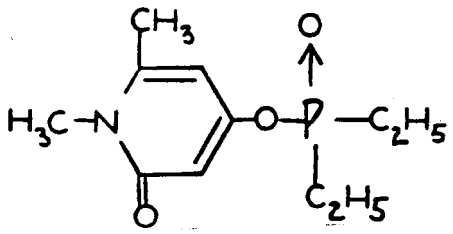
, etc.

88 Two or more PX- groups attached to the same 1,3-diazine (X is chalcogen):
This subclass is indented under subclass 86. in which at least two PX's are bonded directly to the 1,3-diazine moiety, e.g.,



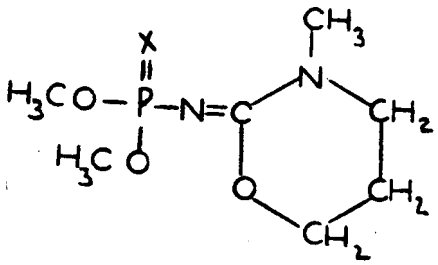
, etc.

89 Hetero ring is six-membered and includes only one ring nitrogen:
This subclass is indented under subclass 79. Subject matter in which the organo-phosphorus compound contains a heterocyclic ring which has six members and includes only one therein, e.g.,



, etc.

90 **Chalcogen in the six-membered hetero ring:**
This subclass is indented under subclass 89. Subject matter in which the organo-phosphorus compound contains a six-membered heterocyclic ring which also contains a chalcogen atom as well as the nitrogen, e.g.,



, etc.

91 **Hetero ring is five-membered:**
This subclass is indented under subclass 79. Subject matter in which the organo-phosphorus compound contains a heterocyclic moiety which has five members.

92 **Two or more hetero atoms in the five-membered ring:**
This subclass is indented under subclass 91. Subject matter in which the organo-phosphorus compound contains a five-membered heterocyclic moiety which contains two or more hetero atoms.

93 **Triazoles (including hydrogenated):**
This subclass is indented under subclass 92. Subject matter in which the organo-phosphorus compound contains a five-membered heterocyclic moiety which consists of three nitrogens and two carbons.

94 **Diazoles (including hydrogenated):**
This subclass is indented under subclass 92. Subject matter in which the organo-phosphorus compound contains a five-membered heterocyclic moiety which contains two nitrogens and three carbons.

95 **Sulfur containing hetero ring:**
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound contains a heterocyclic ring which contains at least one sulfur atom as a ring member.

96 **Polycyclo ring system having the hetero ring as one of the cyclos:**
This subclass is indented under subclass 95. Subject matter in which the organo-phosphorus compound contains a bridged or fused ring system which has a heterocyclic sulfur containing ring as one of the cyclos.

97 **Two or more sulfurs in the hetero ring:**
This subclass is indented under subclass 95. Subject matter in which the organo-phosphorus compound contains at least two sulfur atoms as ring members.

98 **Oxygen in the hetero ring:**
This subclass is indented under subclass 95. Subject matter in which the organo-phosphorus compound contains a heterocyclic ring which contains at least one sulfur atom and at least one oxygen atom as ring members.

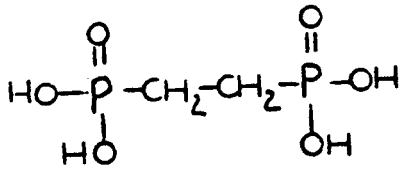
99 **Oxygen containing hetero ring:**
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound contains at least one oxygen atom as a ring member.

100 **Polycyclo ring system having the hetero ring as one of the cyclos:**
This subclass is indented under subclass 99. Subject matter in which the organo-phosphorus compound contains a fused or bridged ring system which contains a heterocyclic oxygen-containing ring as one of the cyclos.

101 **Two or more oxygen in the hetero ring:**
This subclass is indented under subclass 99. Subject matter in which the organo-phosphorus compound contains a heterocyclic ring which contains at least two oxygen atoms as ring members.

102 **Two or more phosphorus atoms directly or indirectly bonded together by only covalent bonds:**
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound contains at least two nonionically bonded phosphorus atoms.

(1) Note. Organic phosphorus salts and complexes of a phosphorus containing compound and other compounds are excluded unless the phosphorus containing moiety has at least two nonionically bonded phosphorus atoms, e.g.,

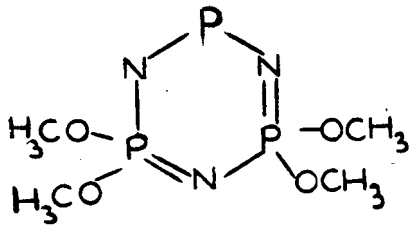


, etc.

103 **Phosphorus acid ester of polyhydric alcohol or thioalcohol(e.g., P-X-R-X-P group, etc., wherein X is chalcogen and R is the residue of the polyhydric alcohol or thioalcohol):**
This subclass is indented under subclass 102. Subject matter in which the organo-phosphorus compound is a phosphorus acid ester of a polyhydric alcohol or thioalcohol, e.g., P-X-(R) XP group, etc., wherein X is chalcogen and R is the residue of a polyhydric alcohol.

104 **Benzene ring in the alcohol moiety:**
This subclass is indented under subclass 103. Subject matter in which the polyphosphorus compound corresponds to the structure -P-X-(R)-X-P-, wherein R is the residue of a polyhydric alcohol which is aromatic in nature (i.e., contains a benzene ring and wherein X is chalcogen).

105 **Phosphorus is part of a ring:**
This subclass is indented under subclass 102. Subject matter in which a phosphorus atom is part of a ring, e.g.,



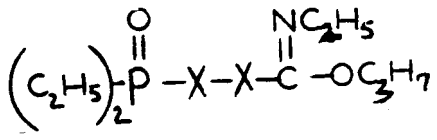
, etc.

106 **P-O-P or P-S-P containing (e.g., anhydrides, etc.):**
This subclass is indented under subclass 102. Subject matter which contains a polyphosphorus compound wherein two phosphorus atoms are linked to each other through a single oxygen or sulfur (i.e., P-O-P OR P-S-P).

107 **Benzene ring containing:**
This subclass is indented under subclass 102. Subject matter in which the phosphorus compound contains a benzene ring.

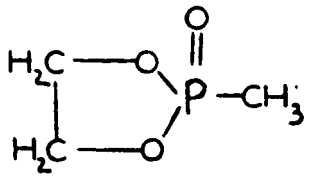
108 **Acyclic and contains at least one carbon atom between the phosphorus atoms:**
This subclass is indented under subclass 102. Subject matter in which the phosphorus compound is acyclic and contains at least one carbon between the phosphorus atoms.

109 **P-X-X containing (X is chalcogen):**
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound has a single phosphorus atom linked directly to a chalcogen atom which in turn is linked directly to another chalcogen atom, e.g., as illustrated below, wherein X is chalcogen.



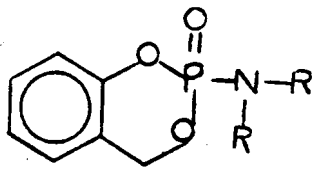
, etc.

110 Phosphorus is part of a ring:
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound contains the phosphorus atom as part of a ring, e.g.,



, etc.

111 Polycyclo ring system having the phosphorus containing ring as one of the cyclos:
This subclass is indented under subclass 110. Subject matter in which the organo-phosphorus compound contains a fused ring system or bridged ring system of which the phosphorus containing ring is a part, e.g.,

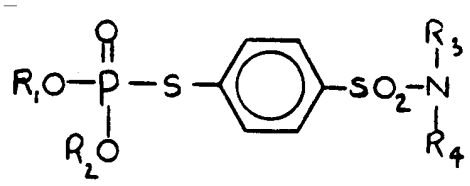


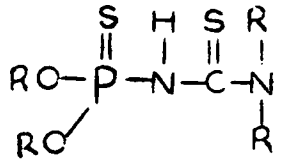
, etc.

112 Cyano or isocyano containing:
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound contains at least one nitrile or isonitrile radical bonded to a carbon.

113 Cyano or isocyano bonded directly to a benzene ring:
This subclass is indented under subclass 1. Subject matter in which the nitrile or isonitrile radical bonded to a benzene ring.

114 Nitrogen, other than nitro or nitroso, bonded indirectly to phosphorus:
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound contains a nitrogen, other than nitro or nitroso, which is not directly bonded to the phosphorus atom, e.g.,



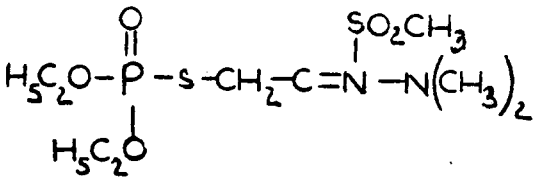


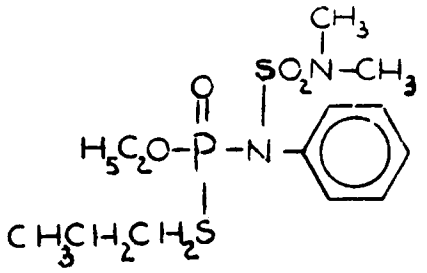
, etc.

115 N-C(=X)-N containing (S is chalcogen):
This subclass is indented under subclass 114. Subject matter in which the organo-phosphorus compound contains the radical NN wherein X is chalcogen.

116 Sulfur single bonded directly to nitrogen:
This subclass is indented under subclass 114. Subject matter in which the organo-phosphorus compound contains a sulfur atom which is directly bonded to a nitrogen by a single bond.

117 N-(=O)S(=O) containing (i.e., sulfonamides):
This subclass is indented under subclass 116. Subject matter in which the organo-phosphorus compound contains the sulfonamido group, e.g.,

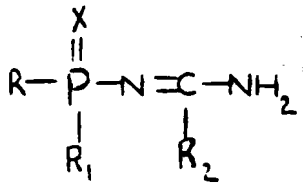




, etc.

118 Phosphorus single bonded directly to nitrogen:

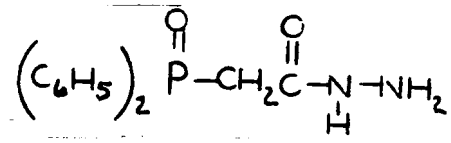
This subclass is indented under subclass 114. Subject matter in which the organo-phosphorus compound contains a nitrogen which is directly bonded to a phosphorus atom by a single bond, e.g.,



, etc.

119 C(=O)N containing:

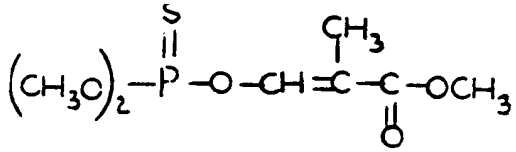
This subclass is indented under subclass 114. Subject matter in which the organo-phosphorus compound contains an amido group, e.g.,



, etc.

120 C=O other than as ketone or aldehyde, attached directly or indirectly to phosphorus:

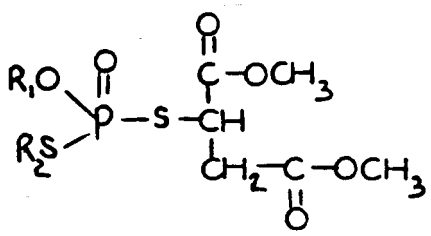
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound contains a carbonyl group, other than as ketone or aldehyde, e.g.,



, etc.

121 Plural C=O groups, other than as ketone or aldehyde:

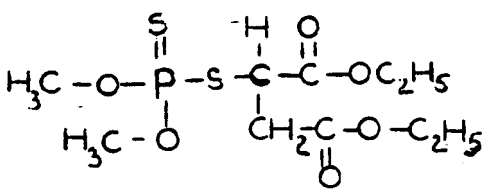
This subclass is indented under subclass 120. Subject matter wherein the organo-phosphorus compound contains two C=O groups which are other than a ketone or aldehyde, e.g.,



, etc.

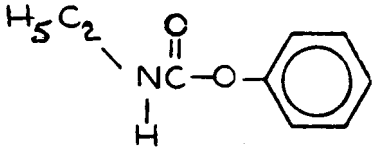
122 Malathion:

This subclass is indented under subclass 121. Subject matter wherein the organo-phosphorus compound is malathion, i.e.,



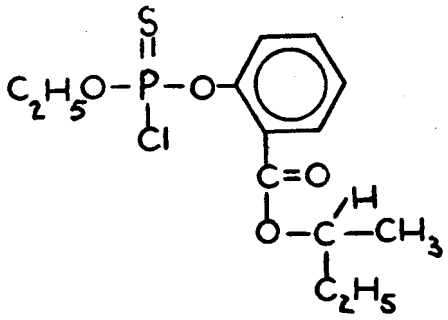
, etc.

123 With N-C(=O)-O containing compound:
This subclass is indented under subclass 122. Subject matter wherein another compound is present, along with malathion, which has the N(C=O)-O group therein, e.g.,



, etc.

124 C=O, other than as ketone or aldehyde, attached to a benzene ring:
This subclass is indented under subclass 120. Subject Matter wherein the organo-phosphorus compound contains a C=O group other than as ketone or aldehyde attached directly to a benzene ring, e.g.,



, etc.

125 Ketone or aldehyde containing:
This subclass is indented under subclass 75. Subject matter wherein the organo-phosphorus compound contains at least one carbonyl group in the form of an aldehyde or ketone.

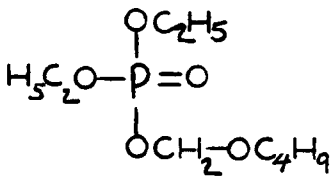
126 Sulfur not bonded directly to phosphorus:
This subclass is indented under subclass 126. Subject matter in which the organo-phosphorus compound contains sulfur and wherein said sulfur is not bonded directly to the phosphorus atom.

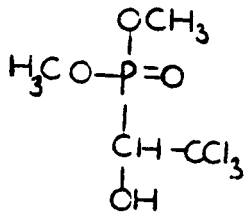
127 Thioether, sulfoxide or sulfone:
This subclass is indented under subclass 126. Subject matter in which the organo-phosphorus compound contains sulfur in the form of a thioether, sulfoxide or sulfone group.

(1) Note. This subclass contains the groups: C-S-C; C- C, and C- C

128 Sulfur bonded directly to a benzene ring:
This subclass is indented under subclass 127. Subject matter wherein the sulfur is directly bonded to a carbon of a benzene ring.

129 Oxygen bonded directly to a carbon or hydrogen and wherein the oxygen is not bonded directly to phosphorus:
This subclass is indented under subclass 75. Subject matter wherein the organo-phosphorus compound contains an oxygen which is bonded directly to a carbon or hydrogen and wherein the oxygen is not bonded to phosphorus, e.g .,



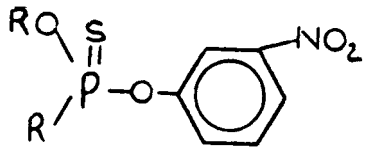


, etc.

130 The oxygen is bonded directly to a benzene ring:
This subclass is indented under subclass 129. Subject matter wherein the oxygen therein is directly bonded to a benzene ring.

131 **Nitro group bonded to a carbon:**
This subclass is indented under subclass 75. Subject matter wherein the organo-phosphorus compound contains at least one nitro substituent bonded to a carbon.

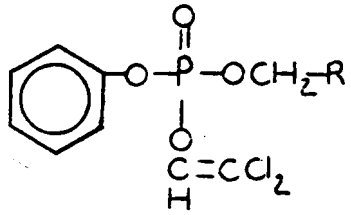
132 **Nitro group is directly bonded to a benzene ring which benzene ring is either bonded directly bonded to phosphorus or indirectly bonded to phosphorus through a chalcogen:**
This subclass is indented under subclass 131. Subject matter wherein the nitro is directly attached to a benzene ring which is directly bonded to phosphorus, or indirectly bonded to phosphorus through a chalcogen, e.g.,



, etc.

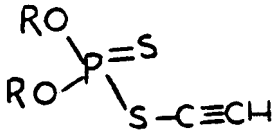
133 **Two or more such benzene rings:**
This subclass is indented under subclass 132. Subject matter wherein two or more such nitro substituted benzene rings are present.

134 **Acyclic carbon to carbon unsaturation:**
This subclass is indented under subclass 75. Subject matter wherein the organo-phosphorus compound has at least one unsaturated group between adjacent carbon atoms and wherein said unsaturation is present other than as an aromatic compound, e.g.,



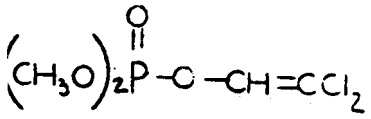
, etc.

135 This subclass is indented under subclass 134. Subject matter wherein the unsaturation is in the form of a triple bond, e.g.,



, etc.

136 **Phosphate ester having three ester groups (e.g., DDVP, etc.):**
This subclass is indented under subclass 134. Subject matter wherein the organo-phosphorus compound is a triester of otho-phosphoric acid, e.g., as illustrated below, or sulfur analog thereof, etc.



137 **Nitrogen bonded directly to phosphorus:**
This subclass is indented under subclass 75. Subject matter wherein the organo-phosphorus compound has at least one phosphorus to nitrogen bond.

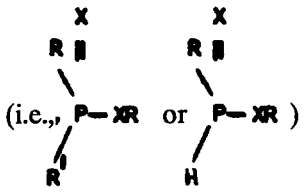
SEE OR SEARCH THIS CLASS, SUBCLASS:

118, when another nitrogen atom other than nitro or nitroso is present in the molecule which nitrogen is not directly bonded to phosphorus.

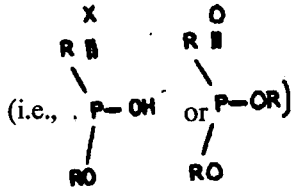
138 **N-P-N or N-N-P containing:**
This subclass is indented under subclass 137. Subject matter wherein the organo-phosphorus compound has a N-P-N or N-N-P chain therein.

139 Phosphorus bonded directly to halogen:
This subclass is indented under subclass 75. Subject matter wherein the organo-phosphorus compound has at least one phosphorus to halogen bond.

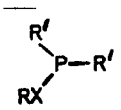
140 (C)(R)P=X(-XC) containing (i.e., phosphinate) (X is chalcogen; R is C or H):
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound is an ester of phosphinic acid, illustrated below, wherein R and R' are organic radicals and X is chalcogen.

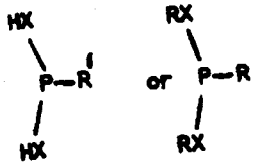


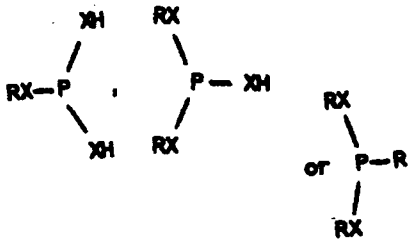
141 (CX-) (C) P=X (XH) OR (CX-) (R) P=X (XC) containing (e.g., phosphonate, etc.):
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound is an ester of phosphonic acid, illustrated below, wherein R is an organic radical and X is chalcogen.



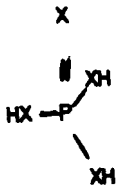
142 (CX-)(C)P(C),(CX-)(RX-)P (C), (CX-) P (XH)(XH or (CX-)P(-XR) containing (X is chalcogen: R is C or H) (e.g., phosphinite, phosphonite, phosphite, etc.):
This subclass is indented under subclass 75. Subject matter in which the organo-phosphorus compound is (a) an ester or phosphinous acid (i.e., first illustration below), (b) an ester of phosphonous acid, as in the second illustration, below, or (c) an ester of phosphorus acid, as in the third illustration, below, wherein R or R in any of the above formulas is an organic radical and X is chalcogen.



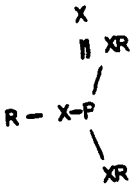




143 Ester or (HX) P=X (XH) (XH) (X is chalcogen) (e.g., phosphate, etc.):
This subclass is indented under subclass 775. Subject matter in which the organo-phosphorus compound is an ester of an acid whose structural formula is, as illustrated below, wherein X is chalcogen.



144 Triester:
This subclass is indented under subclass 143. Subject matter which the organo-phosphorus compound is a triester of orthophosphoric acid, illustrated below, wherein X is chalcogen.

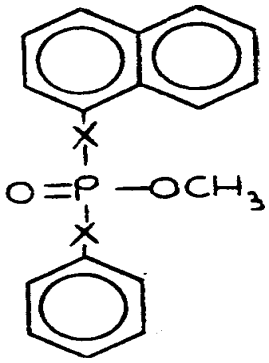


145 Three benzene rings bonded directly to chalcogen:

This subclass is indented under subclass 144. Subject matter wherein the organo-phosphorus compound has three benzene rings attached directly to chalcogens which are bonded directly to a single phosphorus atom.

SEE OR SEARCH THIS CLASS, SUBCLASS:

146, for the compound, illustrated below, which is considered to have only two benzene rings attached to chalcogens which are bonded directly to phosphorus.

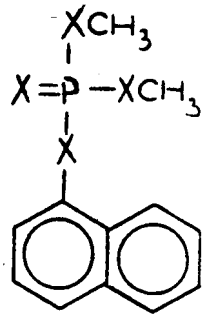


146 Two benzene rings bonded directly to chalcogen:

This subclass is indented under subclass 144. Subject matter wherein the organo-phosphorus compound has at least two benzene rings attached directly to chalcogens which are bonded to a single phosphorus atom.

SEE OR SEARCH THIS CLASS, SUBCLASS:

147, for the compound, illustrated below, which is considered to have only one benzene ring bonded to chalcogen which is bonded directly to phosphorus.

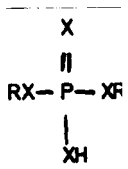


147 One benzene ring bonded directly to chalcogen:

This subclass is indented under subclass 144. Subject matter wherein the organo-phosphorus compound has one benzene ring attached directly to a chalcogen which is directly bonded to a phosphorus atom.

148 Diester:

This subclass is indented under subclass 143. Subject matter wherein the organo-phosphorus compound has the formula, illustrated below, wherein R is an organic radical and X is chalcogen.

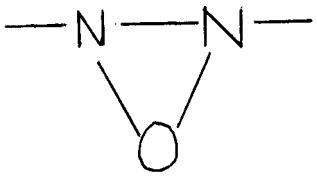


149 Azoxy DOAI:

This subclass is indented under subclass 1. Subject matter wherein the active DOAI contains the azoxy group, i.e., -N(O)=N-, wherein each nitrogen is bonded directly to carbon.

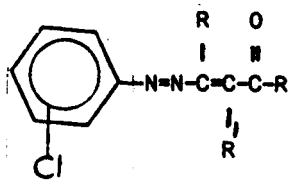
(1) Note. Subject matter containing a -N=N- groups as part of a ring is classified in subclass 183.

(2) Note. The azoxy group may also be represented as shown below.

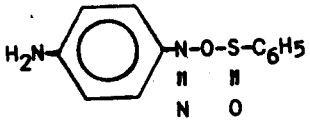


150 Acyclic nitrogen double bonded to acyclic nitrogen, acyclic nitrogen triple bonded to acyclic nitrogen or azide DOAI:

This subclass is indented under subclass 1. Subject matter wherein the active DOAI contains an acyclic nitrogen which is double or triple bonded to another acyclic nitrogen, i.e., -N=N- or --ANION, as illustrated below, (diazonium) or azide, etc.



e.g.,

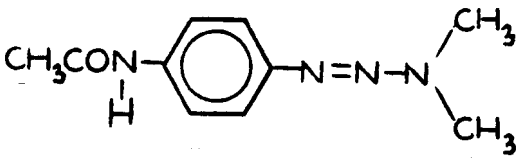


SEE OR SEARCH THIS CLASS, SUBCLASS:

183, for a -N=N- group as part of a hetero ring.

151 Acyclic C-N=N-N containing:

This subclass is indented under subclass 150. Subject matter wherein the active ingredient contains the C-N=N-N grouping e.g.,

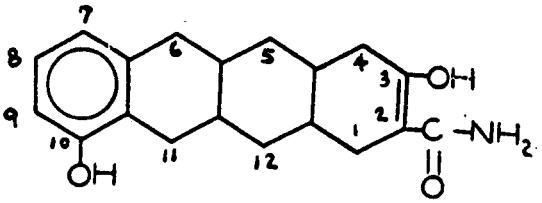


,etc.

(1) Note. Subject matter which contains -N=N-N- as part of a ring is classified in subclass 183.

152 3,10-dihydroxy-2-naphthacene carboxamide or derivative (e.g., tetracycline, etc.) DOAI:

This subclass is indented under subclass 1. Subject matter which contains an active DOAI which has the 3,10 dihydroxy-2-naphthacenecarboxamide nucleus, e.g., (tetracycline),



,etc.

153 With stabilizer or preservative:

This subclass is indented under subclass 152. Subject matter wherein an additional agent is present which is disclosedas a stabilizer or preservative for the 3,10-dihydroxy-2-naphthacenecarboxamide compound.

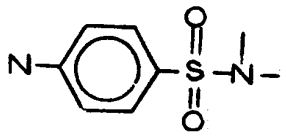
154 With an additional active ingredient (excludes reaction product or complex):

This subclass is indented under subclass 152. Subject matter which contain a compound and an additional active ingredient.

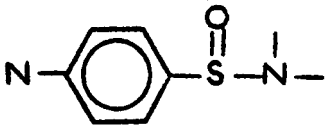
(1) Note. Reaction products, complexes and mixtures comprising two or moreactive compounds which havethe 3,10-dihydroxy-2-naphthacenecarboxamide nucleus are included herein.

155 Para-N-benzene - sulfoxy-N containing DOAI, and said benzene ring is not part of a polycyclo ring system:

This subclass is indented under subclass 1. Subject matter which contains a DOAI which has the structural group, as illustrated below and no ring of any type is fused onto the benzene nucleus, e.g., sulfanilamide, p-nitrobenzenesulfonylhydrazone, etc.

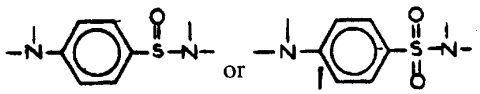


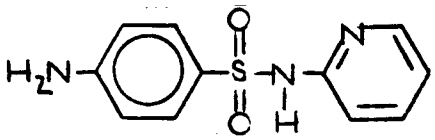
Or



156 Hetero ring containing:

This subclass is indented under subclass 155. Subject matter wherein the active ingredient having at least one group, shown in the first illustration below, also contains a heterocyclic group, e.g., sulfapyridine, shown in the second illustration, below.





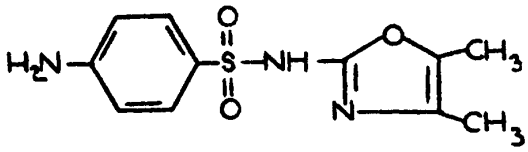
,etc.

157 The hetero ring is six-membered and includes at least two nitrogens and no other hetero atoms:

This subclass is indented under subclass 156. Subject matter wherein the heterocyclic ring has six members and includes at least two nitrogen and no other hetero atoms.

158 The hetero ring is five-membered:

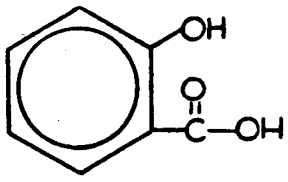
This subclass is indented under subclass 156. Subject matter wherein the heterocyclic group has five members, e.g., sulfamoxole,

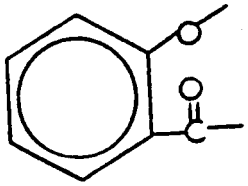


,etc.

159 Ortho-hydroxybenzoic acid (i.e., salicylic acid) or derivative DOAI:

This subclass is indented under subclass 1. Subject matter wherein the organic active ingredient contains salicylic acid as shown in the first illustration, below, or a derivative thereof which contains the moiety, as shown in the second illustration, below, said derivative being other than another ring fused onto the benzoic acid moiety or the ortho-hydroxybenzoic acid salts of a bioactive organic compound.

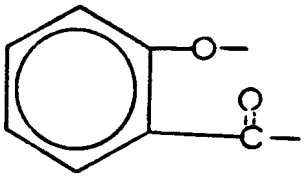




(1) Note. This subclass includes ring structures derived from the carboxy and hydroxyl moieties.

(2) Note. The ortho-hydroxybenzoic acid salts of organic compounds are excluded herefrom and are classified in the appropriate subclasses below based on the bioactive compound.

160 With additional ortho-hydroxybenzoic acid compound:
This subclass is indented under subclass 159. Subject matter wherein two or more bioactive organic compounds each having the moiety are present.



(1) Note. The combination of salicylic acid and a salt thereof is in this subclass.

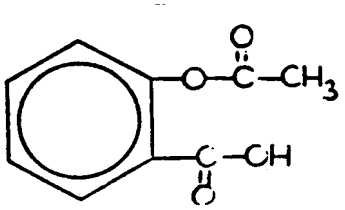
161 With heterocyclic compound:
This subclass is indented under subclass 159. Subject matter wherein a heterocyclic compound is present in addition to the salicylic acid compound.

162 With organic nitrogen containing compound:
This subclass is indented under subclass 159. Subject matter wherein an organic nitrogen compound is present in addition to the salicylic acid compound.

163 With carboxylic acid, ester or metal salt thereof:
This subclass is indented under subclass 159. Subject matter wherein a carboxylic acid, ester or metal salt thereof is present in addition to the salicylic acid compound.

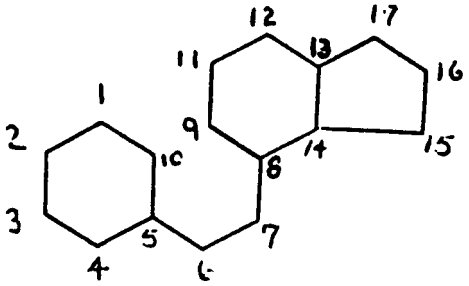
164 With organic oxygen containing compound:
This subclass is indented under subclass 159. Subject matter wherein an organic oxygen compound is present in addition to the salicylic acid compound.

165 Aspirin, per se, (i.e., 2-(acetyloxy) benzoic acid):
This subclass is indented under subclass 159. Subject matter wherein the organic active ingredient is 2-(acetyloxy benzoic acid):



166 Nitrogen containing (e.g., anilides, etc.):
This subclass is indented under subclass 159. Subject matter wherein the salicylic acid compound contains nitrogen, e.g., anilides, etc.

167 9,10-seco cyclopentanohydrophenanthrene ring system (e.g., vitamin D, etc.) DOAI:
Subject matter under subclass wherein the organic active ingredient contains a 9, 10-seco-cyclopentanohydrophenanthrene nucleus, i.e.,

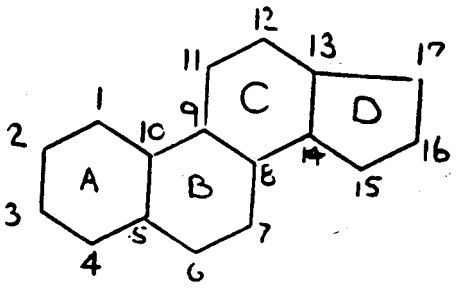


(1) Note. Such terms as “activated ergosterol”, vitamin D, ergocalciferol, cholecalciferol and antirachitic vitamin will

suffice for classification of an active ingredient in this subclass.

168 With a vitamin type active ingredient:
This subclass is indented under subclass 167. Subject matter wherein an additional vitamin type active compound is present in addition to the 9, 10 seco-cyclopentanohydrophenanthrene compound, e.g., vitamin A, etc.

169 Cyclopentanohydrophenanthrene ring system DOAI:
This subclass is indented under subclass 1. Subject matter wherein the organic active ingredient has the cyclopentanohydrophenanthrene nucleus, illustrated below, and may contain double bond between its members.

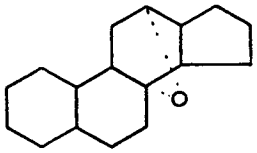


(1) Note. Included herein is lanolin as the active ingredient.

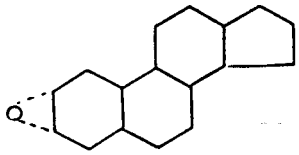
170 Plural compounds containing cyclopentanohydrophenanthrene ring systems:
This subclass is indented under subclass 169. Subject matter wherein two or more bioactive compounds are present each of which contains the cyclopentanohydrophenanthrene ring system.

171 With additional active ingredient:
This subclass is indented under subclass 169. Subject matter wherein an organic bioactive ingredient is present in addition to the cyclopentanohydrophenanthrene ring containing compound.

172 Hetero ring containing:
This subclass is indented under subclass 169. Subject matter wherein the cyclopentanohydrophenanthrene ring containing compound contains a heterocyclic ring. Included herein are:



and



, etc.

173 Spiro ring system:
This subclass is indented under subclass 172. Subject matter wherein a spiro ring is attached directly or indirectly to a carbon of the cyclopentanohydrophenanthrene nucleus.

174 -O-C-O- is part of a hetero ring (e.g., acetonide, etc.):
This subclass is indented under subclass 172. Subject matter wherein an -O-C-O- containing hetero ring is attached or fused to the cyclopentanohydrophenanthrene nucleus.

175 -C(=O)-O- is part of a hetero ring (e.g., lactone, etc.):
This subclass is indented under subclass 172. Subject matter wherein -O-C(=O)- is part of the hetero ring attached or fused to the cyclopentanohydrophenanthrene nucleus.

176 Nitrogen containing hetero ring:
This subclass is indented under subclass 172. Subject matter wherein the hetero ring contains at least one nitrogen atom.

177 Oxygen double bonded to a ring carbon or the cyclopentanohydrophenanthrene ring system:
This subclass is indented under subclass 169. Subject matter wherein a nuclear carbon of the cyclopentanohydrophenanthrene nucleus is bonded to an oxygen atom through a double bond (C=O).

178 Oxygen single bonded to a ring carbon of the cyclopentanohydrophenanthrene ring system:

This subclass is indented under subclass 177. Subject matter wherein one nuclear carbon of the cyclopentanohydrophenanthrene nucleus is bonded to an oxygen through a double bond and wherein another nuclear carbon atom of said cyclopentanohydrophenanthrene is bonded to at least one other oxygen through a single bond as, e.g., ether, hydroxy or alcoholate, etc.

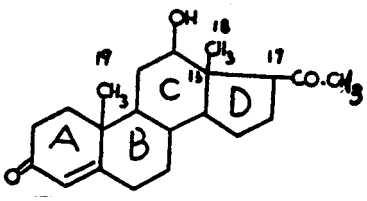
179 Modified C-ring (except methyl in 13-position) (e.g., double bond containing substituted, etc.):

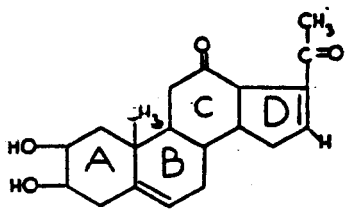
This subclass is indented under subclass 178. Subject matter wherein the C-ring of the cyclopentanohydrophenanthrene ring system contains a double bond or is substituted, other than $-CH_3$ in 13-position, i.e., 18-methyl.

(1) Note. For the purpose of this classification, the C-ring is defined as including positions 8, 9, 11, 12, 13, and 14.

(2) Note. See subclass 169 for the numbering system of a cyclopentanohydrophenanthrene nucleus.

(3) Note. This subclass contains for example:





,etc.

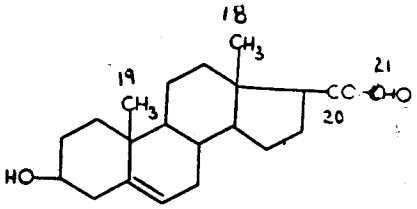
180 9-position substituted:

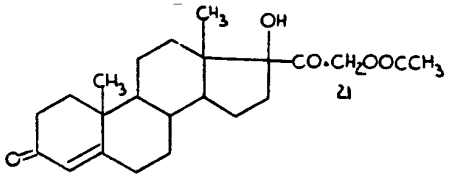
This subclass is indented under subclass 179. Subject matter wherein the cyclopentanohydrophenanthrene is substituted.

181 21-position substituted:

This subclass is indented under subclass 178. Subject matter wherein the carbon in the 21 position is directly bonded to an atom other than carbon or hydrogen.

(1) Note. This subclass contains, for example:

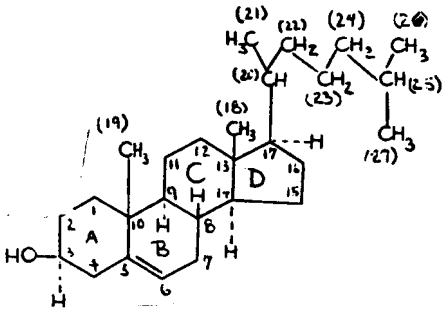




, etc.

182 Oxygen singly bonded to a ring carbon of the cyclopentanohydrophenanthrene ring system:

This subclass is indented under subclass 169. Subject matter wherein a nuclear carbon of the cyclopentanohydrophenanthrene nucleus is bonded to an oxygen through a single bond



Cholestrol.

183 Heterocyclic carbon compounds containing a hetero ring having chalcogen (i.e., O, S, Se, or Te) or nitrogen as the only ring hetero atoms DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound containing a ring composed of carbon and at least one element from the group consisting of nitrogen, sulfur, selenium, tellurium and oxygen as DOAI.

(1) Note. Excluded herefrom are those carbon compounds wherein the only heterocyclic nucleus present is produced by salt formation between amino and acid groups, e.g., betaines, which are placed with the corresponding open chain compounds, particularly subclass 556.

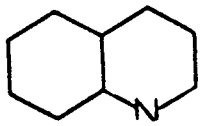
184 Heavy metal-containing (including salts):
This subclass is indented under subclass 183. Subject matter in which the heterocyclic compound includes a heavy metal.

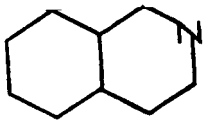
(1) Note. This subclass includes salts.

185 Polycyclo ring system:
This subclass is indented under subclass 184. Subject matter wherein the heterocyclic compound which includes a heavy metal is a part of a fused ring or bridged ring system.

186 Bicyclo ring system:
This subclass is indented under subclass 185. Subject matter wherein the polycyclo system comprises only two rings.

187 Quinolines or isoquinolines (including hydrogenated):
This subclass is indented under subclass 186. Subject matter in which the bicyclo forms a quinoline or isoquinoline ring or hydrogenated forms thereof, e.g.,





,etc.

188 Hetero ring is six-membered consisting of one nitrogen and five carbons:
This subclass is indented under subclass 184. Subject matter wherein the heterocyclic ring consists of five carbons and one nitrogen.

189 Tin:
This subclass is indented under subclass 184. Subject matter wherein the heavy metal is tin.

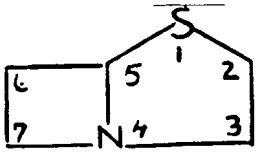
190 Mercury:
This subclass is indented under subclass 184. Subject matter wherein the heavy metal is mercury.

191 Aluminum (including salts):
This subclass is indented under subclass 184. Subject matter in which the heterocyclic compound includes aluminum.

(1) Note. This subclass includes salts.

192 1-thia-4-aza-bicyclo (3.2.0.) heptane ring containing (including dehydrogenated) e.g., penicillins, etc.):
This subclass is indented under subclass 183. Subject matter wherein the heterocyclic compound contains a 1-thia- 4- aza-bicyclo (3.2.0)

heptane ring system having the following structure, and may contain a double bond between ring members, e.g., penicillins, etc.



(1) Note. The Ring Index uses a different system for numbering the ring members. However, in the indents hereunder which refer to positions, the numbers shown in the definition are employed.

(2) Note. Patents reciting broadly "penicillins," "penicillin type," or "penicillin drugs" are placed herein.

SEE OR SEARCH CLASS:
435, Chemistry: Molecular Biology and Microbiology, subclass 43 for processes of producing penicillin by microbial fermentation.
540, Organic Compounds, subclasses 304+ for a penicillin compound, per se.

193 Spiro or addition polycyclo ring system:
This subclass is indented under subclass 192. Subject matter which contains a spiro ring system, or an additional polycyclo ring system.

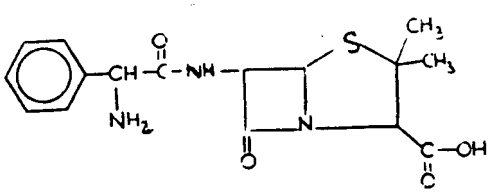
194 6,6-di-substituted:
This subclass is indented under subclass 192. Subject matter wherein the bicyclo heptane ring system contains two substituents other than hydrogen in 6-position.

195 3-position substituent contains -COOC- group:
This subclass is indented under subclass 192. Subject matter wherein a substituent in 3-position of the bicyclo heptane ring system contains a -COOC- group, e.g., ester, etc.

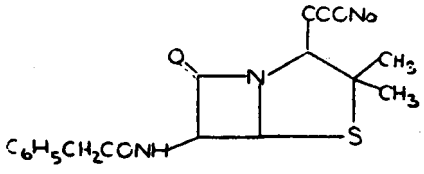
196 6-position substituent contains hetero ring:
This subclass is indented under subclass 192. Subject matter wherein a substituent in 6-position of the bicyclo heptane ring system contains a hetero ring.

197 6-position substituent contains carbocyclic ring:
This subclass is indented under subclass 192. Subject matter wherein a substituent in 6-position of the bicyclo heptane ring system contains a carbocyclic ring.

198 Ampicillin, per se, or salt thereof:
This subclass is indented under subclass 197. Subject matter wherein the heterocyclic compound is ampicillin having the following structure, illustrated below, or salt thereof.

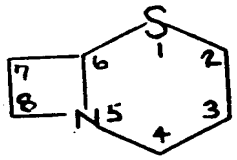


199 Penicillin G, per se, or salt thereof (e.g., procaine penicillin G, etc.):
This subclass is indented under subclass 197. Subject matter wherein the heterocyclic compound is penicillin G or salt thereof, e.g.,



,etc.

200 1-thia-5-aza-bicyclo (4.2.0) octane ring containing (including dehydrogenated) (e.g., cephalosporins, etc.):
This subclass is indented under subclass 183. Subject matter wherein the heterocyclic compound contains a 1-thia-5-aza-bicyclo (4.2.0.) octane ring system having the following structure, illustrated below, and may contain double bond between ring members, e.g., cephalosporin, etc.



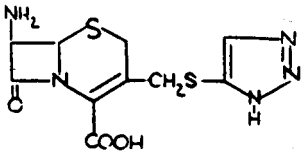
(1) Note. The Ring Index uses a different system for numbering the ring members. However, in the indents hereunder which refer to positions, the numbers shown in the definition are employed.

201 7,7-di-substituted:
This subclass is indented under subclass 200. Subject matter wherein the bicyclo octane ring system contains two substituents other than hydrogen in 7-position.

202 Addition hetero ring:
This subclass is indented under subclass 200. Subject matter wherein the bicyclo octane ring system contains an additional hetero ring.

203 3-Position substituent contains pyridine ring:
This subclass is indented under subclass 202. Subject matter wherein a substituent in 3-position of the bicyclo octane ring system contains a pyridine ring.

204 3-position substituent contains sulfur:
This subclass is indented under subclass 202. Subject matter wherein a substituent in 3-position of the bicyclo octane ring system contains sulfur, e.g.,



etc.

205 The additional hetero ring is part of a polycyclo ring system:
This subclass is indented under subclass 204. Subject matter wherein the additional hetero ring is part of a polycyclo ring system.

206 7-position substituent contains hetero ring:
This subclass is indented under subclass 204. Subject matter wherein a substituent in 7-position contains a hetero ring.

207 Alkyl, hydroxyalkyl, alkoxyalkyl, or alkanoloxyalkyl bonded directly to 3-position:
This subclass is indented under subclass 202. Subject matter wherein alkyl, alkyl-OH, alkyl-O-alkyl, or alkyl-C(=O)-O-alkyl is bonded directly to 3-position of the bicyclo octane ring system.

208 Sulfur containing substituent:
This subclass is indented under subclass 200. Subject matter wherein the bicyclo octane ring system contains sulfur.

209 Alkyl, hydroxyalkyl, alkoxyalkyl, or alkanoloxyalkyl bonded directly to 3-position:
This subclass is indented under subclass 200. Subject matter wherein alkyl, alkyl-OH, alkyl-O-alkyl, alkyl-C(=O)-O-alkyl is bonded directly to 3-position of the bicyclo octane ring system.

210.01 Hetero ring is four-membered and includes at least one ring nitrogen:
This subclass is indented under subclass 183. Subject matter which contains a heterocyclic ring consisting of four atoms, at least one of which is nitrogen.

(1) Note. The heterocyclic ring may include other hetero atoms of the group set forth in the definition of subclass 183 and the relative positions of the hetero atoms may vary.

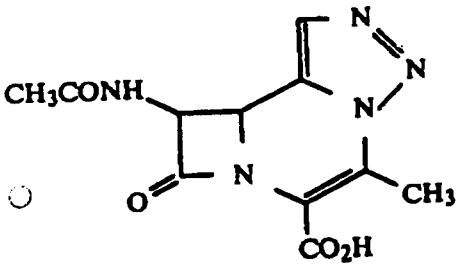
SEE OR SEARCH CLASS:
540, Chemistry, Carbon Compounds, Part of the Class 532-570 Series, subclasses 200 through 364 for a compound which includes a four-membered lactam ring.

548, Carbon Compounds, Part of the 532-570 Series, subclasses 950 through 953, for a compound which includes a non-lactam four-membered hetero ring containing nitrogen.

210.02 Chalcogen double bonded directly to a ring carbon of the four-membered hetero ring which is adjacent to the ring nitrogen:
This subclass is indented under subclass 210.01. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium or tellurium) is double bonded directly to one of the carbons of the four-membered hetero ring which is adjacent to the ring nitrogen.

210.03 Polycyclo ring system having the four-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 210.02. Subject matter wherein the four-membered hetero ring is one of the cyclos of a polycyclo ring system.

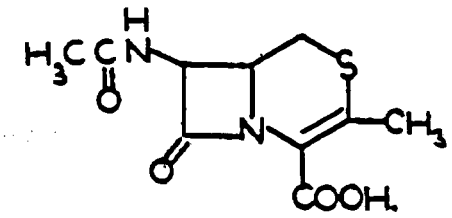
(1) Note. An example of an active ingredient provided for herein is,



210.04 Bicyclo ring system having the four-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 210.03. Subject matter in which the polycyclo ring system consists of exactly two rings.

210.05 Plural ring hetero atoms in the bicyclo ring system:
This subclass is indented under subclass 210.04. Subject matter wherein the bicyclo ring system contains an additional hetero atom (i.e. nitrogen, oxygen, sulfur, selenium, or tellurium).

(1) Note. An example of an active ingredient provided for herein is,

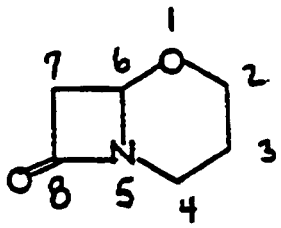


SEE OR SEARCH THIS CLASS, SUBCLASS:
192, for when the additional hetero atom is sulfur, and the bicyclo ring system is 1-thia-4-aza-bicyclo (3.2.0) heptane.
200, for when the hetero atom is sulfur, and the bicyclo ring system is 1-thia-5-aza- bicyclo (4.2.0) octane.

210.06 Ring oxygen in the bicyclo ring system:
This subclass is indented under subclass 210.05. Subject matter wherein the additional hetero atom is oxygen

210.07 The other cyclo of the bicyclo ring system is six-membered:
This subclass is indented under subclass 210.06. Subject matter wherein a six membered ring is the other cyclo of the bicyclo ring system.

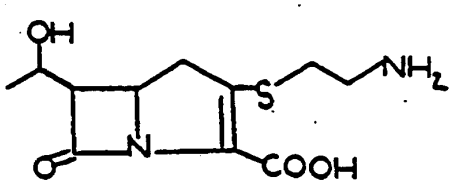
210.08 1-Oxa-5-aza-bicyclo(4.2.0)octanes (including unsaturated):
This subclass is indented under subclass 210.07. Subject matter in which the bicyclo ring system has the following basic structure, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) and the structure may contain double bonds between ring members:



210.09 The other cyclo of the bicyclo ring system is five-membered:
This subclass is indented under subclass 210.04. Subject matter wherein the other cyclo in the bicyclo ring system consists of five members.

210.1 Sulfur bonded directly to the five-membered cyclo of the bicyclo ring system (e.g., thienamycin, etc.):
This subclass is indented under subclass 210.09. Subject matter wherein the five-membered cyclo of of the bicyclo ring system is bonded directly to sulfur.

(1) Note. An example of an active ingredient provided for herein is,



210.11 Additional hetero ring attached directly to the sulfur by nonionic bonding:
This subclass is indented under subclass 210.1. Subject matter wherein the sulfur is attached directly by nonionic bonding to an additional hetero ring (i.e. a ring consisting of carbon and at least one ring member selected from nitrogen and chalcogen).

210.12 The additional hetero ring contains ring nitrogen:
This subclass is indented under subclass 210.11. Subject matter wherein nitrogen is a ring member of the additional hetero ring.

210.13 Having C(=X)- , wherein X is chalcogen, bonded directly to the additional hetero ring:
This subclass is indented under subclass 210.12. Subject matter wherein the additional hetero ring is bonded directly to a C(=X)- group, wherein X is chalcogen (i.e. oxygen, sulfur, selenium or tellurium).

210.14 Polycyclo ring system bonded to the five-membered cyclo of the bicyclo ring system:
This subclass is indented under subclass 210.09. Subject matter wherein the five-membered cyclo of the bicyclo ring system is bonded directly to a polycyclo ring system

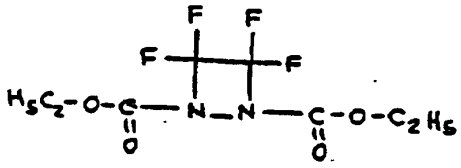
(1) Note. The polycyclo ring system may include a nitrogen- or chalcogen-containing hetero ring.

210.15 Chalcogen bonded directly to the ring nitrogen of the four-membered ring by nonionic bonding
This subclass is indented under subclass 210.02. Subject matter wherein a chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) is bonded directly to the ring nitrogen of the four-membered ring by nonionic bonding.

210.16 Polycyclo ring system having the four- membered hetero ring as one of the cyclos:
This subclass is indented under subclass 210.01. Subject matter wherein the four-membered hetero ring is one of the cyclos in a polycyclo ring system.

210.17 Having -C(=X)-, wherein X is chalcogen, bonded directly to the four membered hetero ring:
This subclass is indented under subclass 210.01. Subject matter wherein a -C(=X)- group, wherein X is chalcogen (i.e. oxygen, sulfur, selenium or tellurium), is attached directly to the four membered hetero ring.

(1) Note. An example of an active ingredient provided for herein is,



210.18 Additional hetero ring attached directly or indirectly to the four-membered heteroby nonionic bonding:

This subclass is indented under subclass 210.17. Subject matter wherein the four-membered hetero ring is attached directly or indirectly by nonionic bonding to an additional hetero ring.

210.19 Additional hetero ring attached directly or indirectly to the four-membered hetero ring by nonionic bonding:

This subclass is indented under subclass 210.01. Subject matter wherein the four-membered hetero ring is attached directly or indirectly by nonionic bonding.to an additional hetero ring.

210.20 The additional hetero ring contains ring nitrogen:

This subclass is indented under subclass 210.19. Subject matter wherein the additional hetero ring contains at least one nitrogen as a ring hetero atom.

210.21 Polycyclo ring system having the additional hetero ring as one of the cyclos:

This subclass is indented under subclass 210.20. Subject matter wherein the additional hetero ring is part of a polycyclo ring system.

211.01 Hetero ring contains seven members including nitrogen, carbon, and chalcogen:

This subclass is indented under subclass 183. Subject matter which contains a hetero ring having exactly seven members consisting of carbon, nitrogen and chalcogen (i.e., oxygen, sulfur, selenium, or tellurium as its only ring members).

SEE OR SEARCH CLASS:

540, Chemistry, Carbon Compounds, Part of the 532-570 Series, subclasses 488 through 491 for seven-membered lactams containing a chalcogen ring atom in the lactam ring, subclasses 544 through 552 for non-lactam seven-membered hetero ring compounds which include nitrogen and chalcogen as ring atoms of the seven-membered hereto ring.

211.02 Monocyclic cyclopentyl ring bonded directly to the seven-membered hetero ring (e.g., prostaglandins, etc.):

This subclass is indented under subclass 211.01. Subject matter wherein the seven-membered hetero ring is bonded directly to a monocyclic cyclopentyl ring

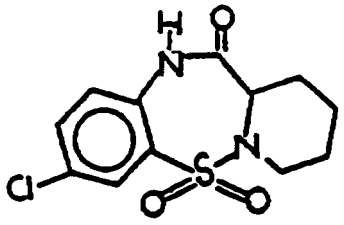
211.03 Chalcogen double bonded directly to a ring carbon which is adjacent to the ring nitrogen:

This subclass is indented under subclass 211.01. Subject matter wherein a chalcogen (i. oxygen, sulfur, selenium, or tellurium) is double bonded directly to a ring carbon which is adjacent to the ring nitrogen of the seven-membered hetero ring.

211.04 Polycyclo ring system which contains the seven-membered hetero ring as of the cyclos:

This subclass is indented under subclass 211.03. Subject matter wherein the seven-membered hetero ring is one of the cyclos of a polycyclo ring system.

(1) Note. An example of an active ingredient provided for herein is,



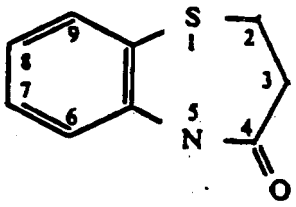
211.05 Bicyclo ring system having the seven-membered hetero ring as one of the cyclos:

This subclass is indented under subclass 211.04. Subject matter wherein the polycyclo ring system consists of exactly two rings.

211.06 Ring chalcogen and ring nitrogen are in the 1,5 positions of the seven-membered hetero ring

This subclass is indented under subclass 211.05. Subject matter wherein chalcogen and nitrogen are in the 1- and 5-positions, respectively, of the seven-membered hetero ring .

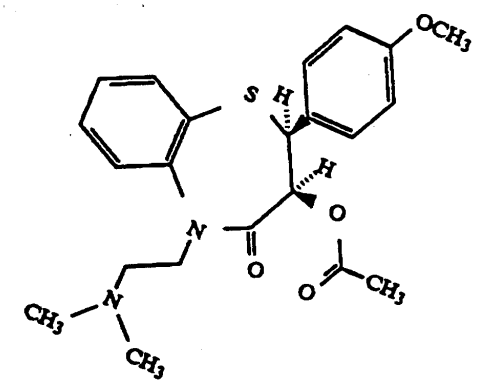
(1) Note. An example of an active ingredient provided for herein is,



211.07 Nitrogen attached directly or indirectly to the ring nitrogen of the seven-membered hetero ring by acyclc nonionic bonding (e.g. Diltiazem, etc.):

This subclass is indented under subclass 211.06. Subject matter wherein the ring nitrogen of the seven-membered hetero ring is attached directly or indirectly to nitrogen by nonionic bonding.

(1) Note. Diltiazem is 2-(p-methoxyphenyl)-3-acetoxy- 5-N,N-dimethylamino-ethyl-1,5-benzothiazepin-4-one, of the following formula:



211.08 Plural ring nitrogens in the seven-membered hetero ring:

This subclass is indented under subclass 211.01. Subject matter wherein the seven-membered hetero ring contains at least two ring nitrogens.

SEE OR SEARCH CLASS:

540, Chemistry, Carbon Compounds, Part of the 532-570 Series, subclass 545, for compounds which contain chalcogen and at least two ring nitrogens in a seven-membered hetero ring.

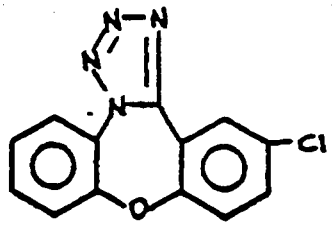
211.09 Polycyclo ring system which contains the seven-membered hetero ring as one of the cyclos:

This subclass is indented under subclass 211.01. Subject matter wherein the seven-membered hetero ring is one of the cyclos of a polycyclo ring system.

211.1 Three ring hetero atoms in the polycyclo ring system:

This subclass is indented under subclass 211.09. Subject matter wherein the polycyclo ring system contains at least three ring hetero atoms.

(1) Note. An example of an active ingredient provided for herein is,



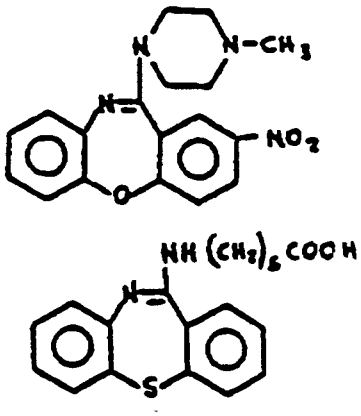
211.11 Tricyclo ring system having the seven-membered hetero ring as one of the cyclos:

Subject matter under 211.09 wherein the polycyclo ring system consists of exactly three rings.

211.12 Ring nitrogen is shared by plural cyclos of the tricyclo ring system:
This subclass is indented under subclass 211.11. Subject matter wherein plural cyclos of the tricyclo ring system share ring nitrogen.

211.13 Nitrogen bonded directly to ring carbon of the seven-membered hetero ring:
This subclass is indented under subclass 211.11. Subject matter wherein a ring carbon of the seven-membered hetero ring is bonded directly to nitrogen.

(1) Note. Examples of active ingredients provided for herein are,



211.14 Having -C(=X)-, wherein X is chalcogen, bonded directly to the seven-membered hetero ring:
This subclass is indented under subclass 211.11. Subject matter wherein the seven-membered hetero ring is bonded to a C(=X)- group, wherein X is chalcogen (i.e. oxygen, sulfur, selenium or tellurium).

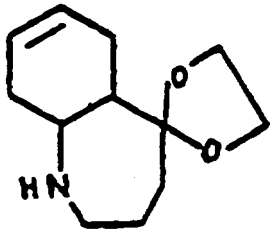
211.15 Additional nitrogen containing hetero ring attached directly or indirectly to the seven-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 211.01. Subject matter wherein the seven-membered hetero ring is attached directly or indirectly by nonionic bonding to an additional nitrogen-containing hetero ring.

212.01 Hetero ring is seven-membered consisting of one nitrogen and six carbons:
This subclass is indented under subclass 183. Subject matter wherein the hetero ring has seven members and consists of one ring nitrogen and six carbon atoms.

SEE OR SEARCH CLASS:
540, Chemistry, Carbon Compounds, Part of the 530-570 Series, subclasses 519 through 540 for a lactam ring compound wherein the ring consists of nitrogen and six carbon atoms, and subclasses 576-612 for a non-lactam compound having a hetero ring consisting one nitrogen and six carbons.

212.02 Spiro:
Subject matter under 212.01 wherein a ring is spiro fused directly or indirectly to the seven-membered hetero ring.

(1) Note. An example of an active ingredient provided herein is:



212.03 Chalcogen double bonded directly to a ring carbon of the seven-membered hetero ring which is adjacent to the ring nitrogen:
This subclass is indented under subclass 212.01. Subject matter wherein chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) is double bonded directly to a ring carbon of the seven-membered hetero ring which is adjacent to the ring nitrogen.

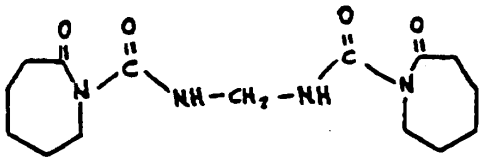
212.04 Polycyclo ring system having the seven-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 212.03. Subject matter wherein the seven-membered hetero ring is one of the cyclos of a polycyclo ring system.

212.05 Plural cyclos of the polycyclo ring system share ring nitrogen of the seven-membered hetero ring:
This subclass is indented under subclass 212.04. Subject matter wherein the ring nitrogen of the seven membered hetero ring is shared by plural cyclos of the polycyclo ring system.

212.07 Bicyclo ring system having the seven-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 212.04. Subject matter wherein the polycyclo ring system consists of exactly two rings.

212.08 Additional hetero ring attached directly or indirectly by nonionic bonding to the seven-membered hetero ring:
This subclass is indented under subclass 212.03. Subject matter wherein the seven-membered hetero ring is attached directly or indirectly to an additional hetero ring by nonionic bonding.

(1) Note. An example of an active ingredient provided for herein is,



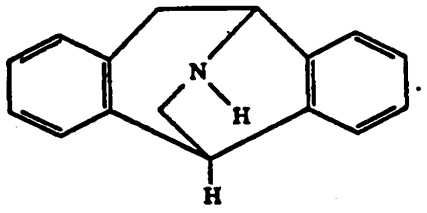
213.01 Polycyclo ring system having the seven-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 212.01. Subject matter wherein the seven-membered hetero ring is one of the cyclos of a polycyclo ring.

214.01 Ring nitrogen of the seven-membered hetero ring is shared by an additional cyclo of the polycyclo ring system:
This subclass is indented under subclass 213.01. Subject matter wherein the ring nitrogen of the seven-membered hetero ring is also a member of an additional cyclo of the polycyclo ring system.

214.02 Plural ring nitrogens in the polycyclo ring system
This subclass is indented under subclass 214.01. Subject matter wherein the polycyclo ring system has two or more ring nitrogens.

214.03 Two of the cyclos share at least three ring members (i.e. bridged):
This subclass is indented under subclass 214.01. Subject matter wherein two cyclos of the polycyclo ring system share at least three ring members.

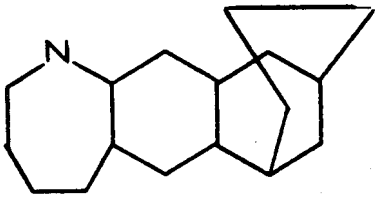
(1) Note. An example of an active ingredient provided for herein is,



215 Additional hetero atom in the polycyclo ring system:
This subclass is indented under subclass 213.01. Subject matter wherein the polycyclo ring system contains at least one ring hetero atom in addition to the ring nitrogen of the seven-membered hetero ring.

216 Two of the cyclos share at least three ring carbons (i.e., bridged):
This subclass is indented under subclass 213.01. Subject matter wherein two cyclos of the polycyclo ring system share at least three ring carbons.

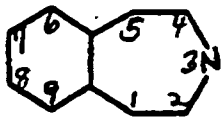
(1) Note. An example of a compound provided for herein is:



etc.

217 Tricyclo ring system having the seven-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 213.01. Subject matter wherein the polycyclo ring system consists of exactly three rings.

217.01 3-Benzazepines (including hydrogenated):
This subclass is indented under subclass 213.01. Subject matter wherein the polycyclo ring system has the following structure which may contain double bonds between its members:



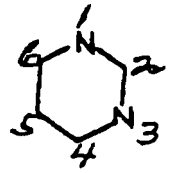
217.02 Benzene ring bonded directly to ring carbon of the seven-membered hetero ring:
Subject matter under 217.01 wherein a ring carbon of the seven-membered hetero ring is bonded directly to an optionally substituted benzene ring.

217.03 Additional hetero ring attached directly or indirectly to the seven-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 212.01. Subject matter wherein the seven-membered hetero ring is attached directly or indirectly by nonionic bonding.to an additional hetero ring

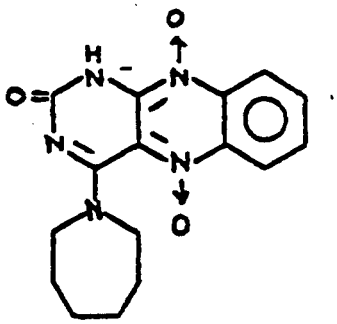
217.04 The additional hetero ring is six-membered and contains nitrogen:
This subclass is indented under subclass 217.03. Subject matter wherein nitrogen is a ring member of the additional hetero ring, which is six-membered.

217.05 Plural ring hetero atoms in the additional hetero ring:
Subject matter under 217.04 wherein the additional hetero ring has at least two ring hetero atoms

217.06 The additional hetero ring is a 1,3 diazine (including hydrogenated):
This subclass is indented under subclass 217.05. Subject matter wherein the additional hetero ring has the following structure



(1) Note. An example of active ingredients provided for herein is,

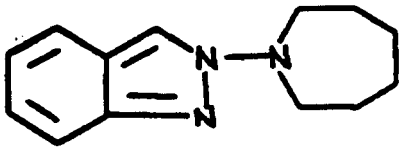


217.07 Polycyclo ring system having the additional six-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 217.04. Subject matter wherein the additional six-membered hetero ring is one of the cyclos of a polycyclo ring system.

217.08 The additional hetero ring is five-membered and contains nitrogen:
This subclass is indented under subclass 217.03. Subject matter wherein nitrogen is a ring member of the additional hetero ring, which is five-membered.

217.09 Plural hetero atoms in the additional hetero ring:
This subclass is indented under subclass 217.08. Subject matter wherein the additional hetero ring contains at least two ring hetero atoms, e.g. diazoles, etc.

(1) Note. An example of an active ingredient provided for herein is,



217.1 Chalcogen is one of the ring hetero atoms:
Subject matter under 217.09 wherein one of the hetero atoms in the additional hetero ring is a chalcogen (i.e. oxygen, sulfur, selenium, or tellurium).

217.11 Nitrogen or -C(=X)-, wherein X is chalcogen, bonded directly to the seven-membered hetero ring:
This subclass is indented under subclass 212.01. Subject matter wherein the seven-membered hetero ring is bonded directly to .nitrogen or to a -C(=X)- group, wherein X is chalcogen (i.e. oxygen, sulfur, selenium or tellurium).

217.12 Nitrogen or C(=X), wherein X is chalcogen, attached indirectly to the seven-membered hetero ring by acyclic nonionic bonding:
This subclass is indented under subclass 212.01. Subject matter wherein the seven-membered hetero ring is attached indirectly by acyclic nonionic bonding to nitrogen or to a C(=X) group, wherein X is chalcogen (i.e. oxygen, sulfur, selenium or tellurium),

218 Hetero ring is seven-membered consisting of two nitrogen and five carbon atoms:
This subclass is indented under subclass 183. Subject matter which contains a seven-membered heterocyclic ring consisting of two nitrogen and five carbon atoms.

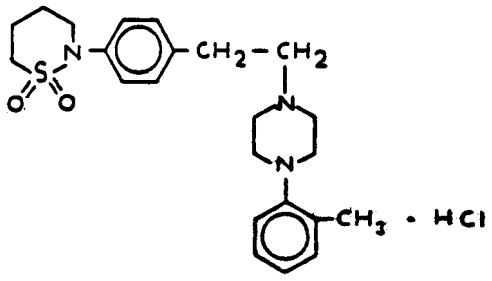
219 Polycyclo ring system having the seven-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 218. Subject matter wherein the seven-membered hetero ring is one of the cyclos of a polycyclo ring system.

220 Tricyclo ring system having the seven-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 219. Subject matter wherein the polycyclo ring system consists of exactly three rings.

221 Bicyclo ring system having the seven-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 219. Subject matter wherein the polycyclo ring system consists of exactly two rings.

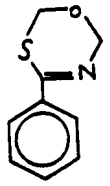
222.2 Hetero ring is six-membered and includes at least nitrogen and sulfur as ring members:
This subclass is indented under subclass 183. Subject matter in which the hetero ring contains at least nitrogen and sulfur as ring hetero atoms and is six-membered.

(1) Note. An example of an active ingredient provided for herein is:



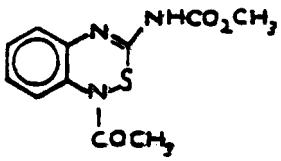
222.5 Three or more ring hetero atoms in the six-membered hetero ring:
This subclass is indented under subclass 222.2. Subject matter in which the six-membered hetero ring contains at least three ring hetero atoms.

(1) Note. An example of an active ingredient provided for herein is:

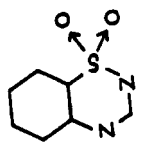


222.8 Polycyclo ring system having the six-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 222.5. Subject matter in which the six-membered hetero ring is one of the cyclos of a polycyclo ring system.

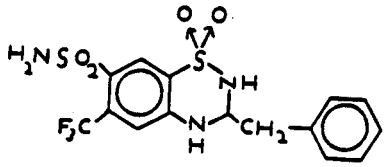
(1) Note. An example of an active ingredient provided for herein is:



223.2 1,2,4,-benzothiadiazine-1, 1-dioxides (including hydrogenated):
This subclass is indented under subclass 222.8. Subject matter in which the polycyclo ring system has the following basic structure, which may contain double bonds between ring members:



(1) Note. An example of an active ingredient provided for herein is:

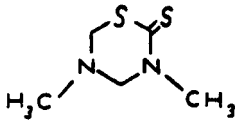


223.5 With additional active ingredient:
This subclass is indented under subclass 223.2. Subject matter in which, in addition to the 1,2, 4-benzothiadiazine-1, 1-dioxide compound, an additional active ingredient is present.

(1) Note. This subclass provides for subject matter wherein plural nonidentical 1,2, 4-benzothiadiazine-1, 1-dioxide compounds are each present as active ingredients.

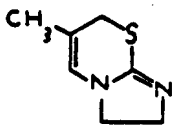
223.8 1,3,5-thiadiazines:
This subclass is indented under subclass 222.5. Subject matter in which the six-membered hetero ring has the following basic structure, which may contain double bonds between ring members:

(1) Note. An example of an active ingredient provided for herein is:



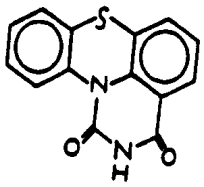
224.2 Polycyclo ring system having the six-membered hetero ring as one of the cyclos (e.g., 1,3- and 1,4-benzothiazines, etc.):
This subclass is indented under subclass 222.22. Subject matter in which the six-membered hetero ring is one of the cyclos of a polycyclo ring system.

(1) Note. An example of an active ingredient provided for herein is:

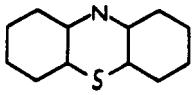


224.5 At least three cyclos in the polycyclo ring system:
This subclass is indented under subclass 224.2. Subject matter in which the polycyclo ring system contains three or more cyclos.

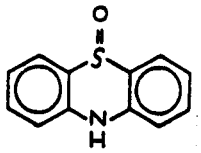
(1) Note. An example of an active ingredient provided for herein is:



224.8 Phenothiazines (including hydrogenated):
This subclass is indented under subclass 224.5. Subject matter in which the polycyclo ring system has the following basic structure, which may contain double bonds between ring members:

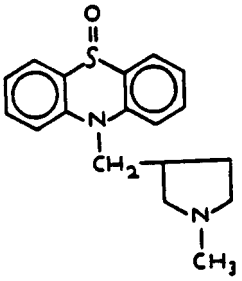


(1) Note. An example of an active ingredient provided for herein is:



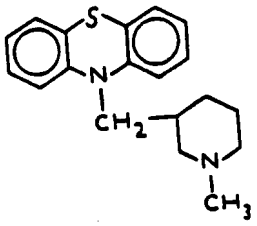
225.2 Hetero ring attached directly or indirectly to the phenothiazine ring nitrogen by acyclic nonionic bonding:
This subclass is indented under subclass 224.8. Subject matter in which the phenothiazine ring nitrogen is attached directly or indirectly to a hetero ring by acyclic nonionic bonding.

(1) Note. An example of a active ingredient provided for herein is:



225.5 The hetero ring is monocyclic piperidine:
This subclass is indented under subclass 225.2. Subject matter in which monocyclic piperidine is the hetero ring.

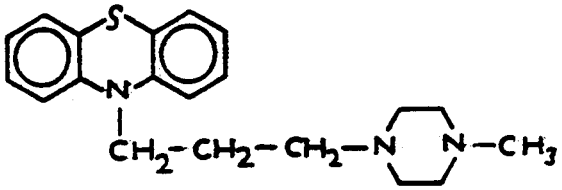
(1) Note. An example of an active ingredient provided for herein is:



225.8 The hetero ring contains plural ring nitrogens:

This subclass is indented under subclass 225.2. Subject matter in which the hetero ring contains more than one ring nitrogen.

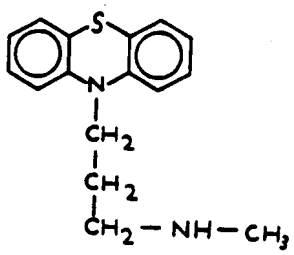
(1) Note. An example of an active ingredient provided for herein is:



226.2 Chalcogen or nitrogen attached indirectly to the phenothiazine ring nitrogen by acyclic nonionic bonding:

This subclass is indented under subclass 224.8. Subject matter in which the phenothiazine ring nitrogen is attached indirectly to chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) or to nitrogen by acyclic nonionic bonding.

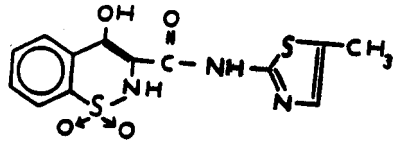
(1) Note. An example of an active ingredient provided for herein is:



226.5 One of the cyclos is a 1, 2-thiazine (e.g., 1, 2-benzothiazines, etc.):

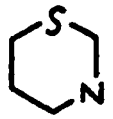
This subclass is indented under subclass 224.2. Subject matter in which a 1, 2-thiazines is one of the cyclos of the polycyclo ring system.

(1) Note. An example of an active ingredient provided for herein is:

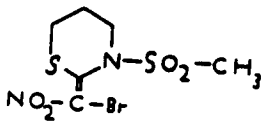


226.8 1, 3-thiazines:

This subclass is indented under subclass 222.2. Subject matter in which the hetero ring has the following basic structure, which may contain double bonds between ring members:



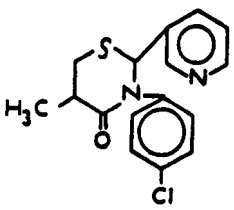
(1) Note. An example of an ingredient provided for herein is:



227.2 Chalcogen or nitrogen bonded directly to ring carbon of the six-membered hetero ring:

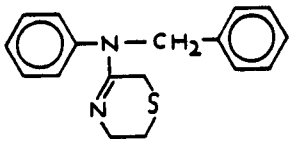
This subclass is indented under subclass 226.8. Subject matter in which a ring carbon if the 1, 3-thiazine ring is bonded directly to chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) or to nitrogen.

(1) Note. An example of an active ingredient provided for herein is:



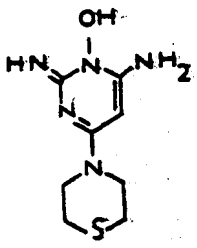
227.5 1, 4-thiazines:
This subclass is indented under subclass 222.2. Subject matter in which the hetero ring has the following basic structure, which may contain double bonds between ring members:

(1) Note. An example of an active ingredient provided for herein is:



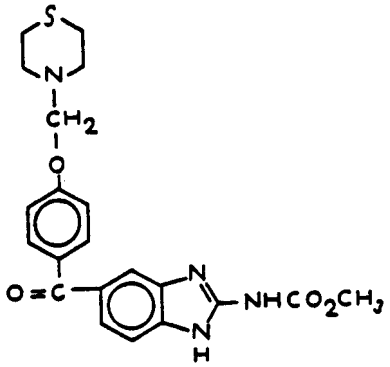
227.8 Additional hetero ring attached directly or indirectly to the 1, 4-thiazine by nonionic bonding:
This subclass is indented under subclass 227.5. Subject matter in which the 1, 4-thiazines is attached directly or indirectly by nonionic bonding to an additional hetero ring.

(1) Note. An example of an active ingredient provided for herein is:



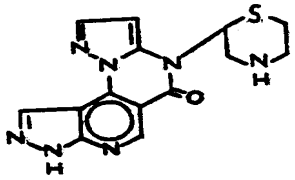
228.2 Polycyclo ring system having the additional hetero ring as one if the cyclos:
This subclass is indented under subclass 227.8. Subject matter in which the additional hetero ring is one of the cyclos of a polycyclo ring system.

(1) Note. An example of an active ingredient provided for herein is:



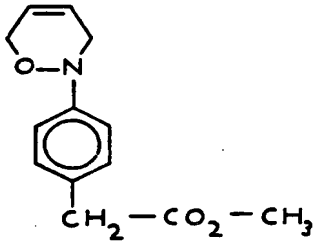
228.5 Three or more ring hetero atoms in the polycyclo ring system:
This subclass is indented under subclass 228.2. Subject matter in which the polycyclo ring system contains at least three ring hetero atoms.

(1) Note. An example of an active ingredient provided for herein is:



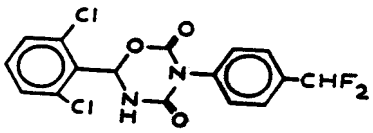
228.8 Hetero ring is six-membered and includes at least nitrogen and oxygen as ring hetero atoms (e.g., monocyclic 1, 2- and 1, 3-oxazines, etc.):
This subclass is indented under subclass 183. Subject matter in which the hetero ring contains at least nitrogen and oxygen as ring hetero atoms and is six-membered.

(1) Note. An example of an active ingredient provided for herein is:



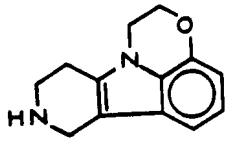
229.2 Three or more ring hetero atoms in the six-membered hetero ring:
This subclass is indented under subclass 228.8. Subject matter in which the six-membered hetero ring contains at least three ring hetero atoms.

(1) Note. An example of an active ingredient provided for herein is:



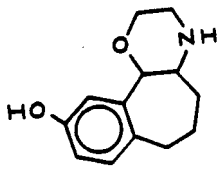
229.5 Polycyclo ring system having the six-membered hetero ring as one of the cyclos (e.g., maytansinoids, etc.):
This subclass is indented under subclass 228.8. Subject matter in which the six-membered hetero ring is one of the cyclos of a polycyclo ring system.

(1) Note. An example of an active ingredient provided for herein is:



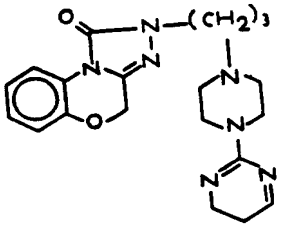
229.8 Tricyclo ring system having the six-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 229.5. Subject matter in which the six-membered hetero ring is one of the cyclos of a tricyclo ring system.

(1) Note. An example of an active ingredient provided for herein is:



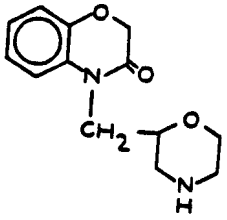
230.2 Ring nitrogen shared by two of the cyclos:
This subclass is indented under subclass 229.8. Subject matter in which the tricyclo ring system contains a ring nitrogen which is shared by two of the cyclos.

(1) Note. An example of an active ingredient provided for herein is:



230.5 Bicyclo ring system having the six-membered hetero ring as one of the cyclos (e.g., 1 4-benzoxazines, etc.):
This subclass is indented under subclass 229.5. Subject matter in which the six-membered hetero ring is one of the cyclos of a bicyclo ring system.

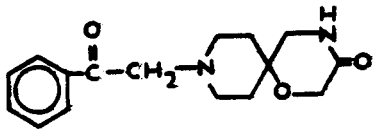
(1) Note. An example of an active ingredient provided for herein is:



230.8 Chalcogen bonded directly to ring carbon of 1, 4-oxazine ring:

This subclass is indented under subclass 228.8. Subject matter in which the six-membered hetero ring has the following basic structure which may contain double bonds between ring members, as illustrated below, and in which chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is bonded directly to a ring carbon of the six-membered hetero ring.

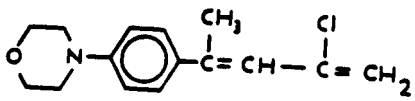
(1) Note. An example of an active ingredient provided for herein is:



231.2 Morpholines (i.e., fully hydrogenated 1, 4-oxazines):

This subclass is indented under subclass 228.8. Subject matter in which the six-membered hetero ring has the following basic structure:

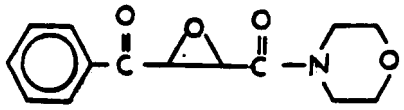
(1) Note. An example of an active ingredient provided for herein is:



231.5 Additional hetero ring attached directly or indirectly to the morpholine ring by nonionic bonding:

This subclass is indented under subclass 231.2. Subject matter in which the morpholine ring is attached to an additional hetero ring by direct or indirect nonionic bonding.

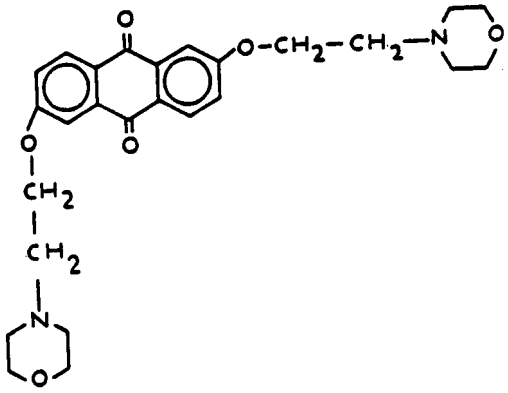
(1) Note. An example of an active ingredient provided for herein is:



231.8 Plural morpholine rings attached directly or indirectly to each other by nonionic bonding:

This subclass is indented under subclass 231.5. Subject matter in which the compound contains two or more morpholine rings attached to each other by direct or indirect nonionic bonding.

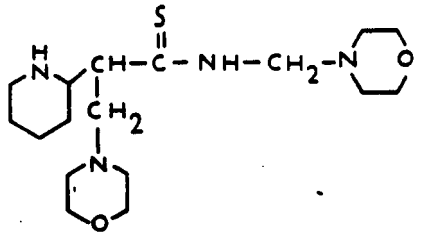
(1) Note. An example of an active ingredient provided for herein is:



232.2 Additional hetero ring attached directly or indirectly to the morpholines by nonionic bonding:

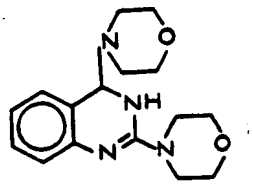
This subclass is indented under subclass 231.8. Subject matter in which the morpholines are attached to an additional hetero ring by direct or indirect nonionic bonding.

(1) Note. An example of an active ingredient provided for herein is:



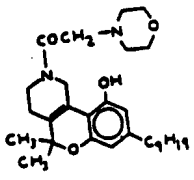
232.5 Polycyclo ring system having the additional hetero ring as one of the cyclos:
This subclass is indented under subclass 232.2. Subject matter in which the additional hetero ring is one of the cyclos of a polycyclo ring system.

(1) Note. An example of an active ingredient provided for herein is:



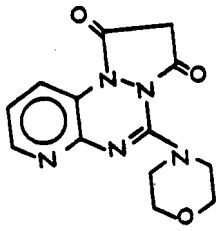
232.8 Polycyclo ring system having the additional hetero ring as one of the cyclos:
This subclass is indented under subclass 231.5. Subject matter in which the additional hetero ring is one of the cyclos of a polycyclo ring system.

(1) Note. An example of an active ingredient provided for herein is:



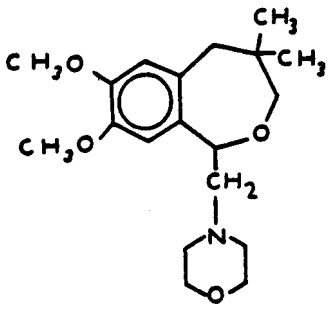
233.2 Ring nitrogen shared by two of the cyclos:
This subclass is indented under subclass 232.8. Subject matter in which two of the cyclos in the polycyclo ring system share a ring nitrogen.

(1) Note. An example of an active ingredient provided for herein is:



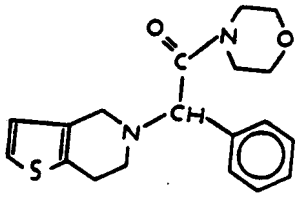
233.5 Bicyclo ring system having the additional hetero ring as one of the cyclos:
This subclass is indented under subclass 232.8. Subject matter in which the additional hetero ring is one of the cyclos of a bicyclo ring system.

(1) Note. An example of an active ingredient provided for herein is:



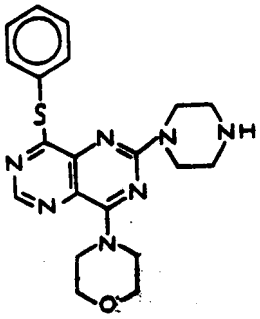
233.8 Plural ring hetero atoms in the bicyclo ring system:
This subclass is indented under subclass 233.5. Subject matter in which the bicyclo ring system contains two or more ring hetero atoms.

(1) Note. An example of an active ingredient provided for herein is:



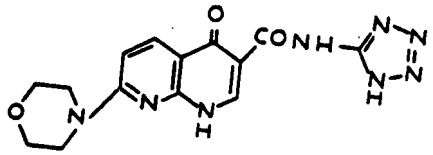
234.2 Three or more ring hetero atoms in the bicyclo ring system:
This subclass is indented under subclass 233.8. Subject matter in which the bicyclo ring system contains at least three ring hetero atoms.

(1) Note. An example of an active ingredient provided for herein is:

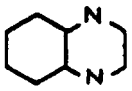


234.5 Plural ring nitrogens in the bicyclo ring system:
This subclass is indented under subclass 233.8. Subject matter in which the bicyclo ring system contains two ring nitrogens.

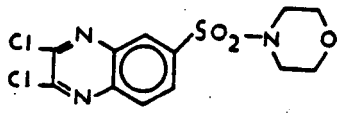
(1) Note. An example of an active ingredient provided for herein is:



234.8 Quinoxalines (including hydrogenated):
This subclass is indented under subclass 234.5. Subject matter in which the bicyclo ring system has the following basic structure which may contain double bonds between ring members:

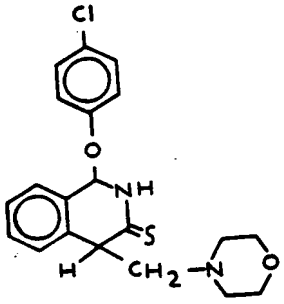


(1) Note. An example of an active ingredient provided for herein is:



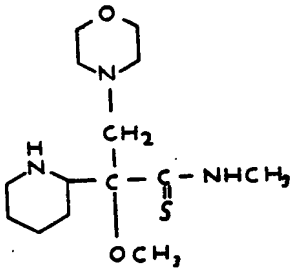
235.2 Ring nitrogen in the bicyclo ring system:
This subclass is indented under subclass 234.5. Subject matter in which the bicyclo ring system contains a ring nitrogen.

(1) Note. An example of an active ingredient provided for herein is:



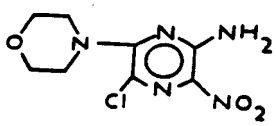
235.5 Ring nitrogen in the additional hetero ring:
This subclass is indented under subclass 231.5. Subject matter in which the additional hetero ring contains a ring nitrogen.

(1) Note. An example of an active ingredient provided for herein is:



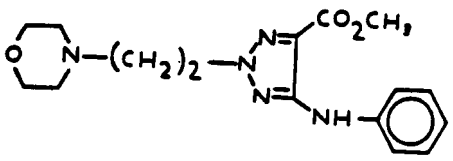
235.8 Plural ring nitrogens in the additional hetero ring (e.g., imidazole, pyrazine, etc.):
This subclass is indented under subclass 235.5. Subject matter in which the additional hetero ring contains plural ring nitrogens.

(1) Note. An example of an active ingredient provided for herein is:



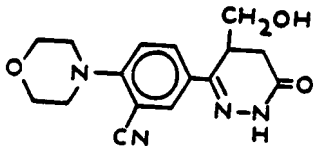
236.2 Three or more ring hetero atoms in the additional hetero ring:
This subclass is indented under subclass 235.8. Subject matter in which the additional hetero ring contains at least three ring hetero atoms.

(1) Note. An example of an active ingredient provided for herein is:



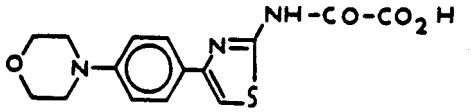
236.5 The ring nitrogens are bonded directly to each other (e.g., pyridazine, etc.):
This subclass is indented under subclass 235.8. Subject matter in immediately adjacent to each other in the ring.

(1) Note. An example of an active ingredient provided for herein is:



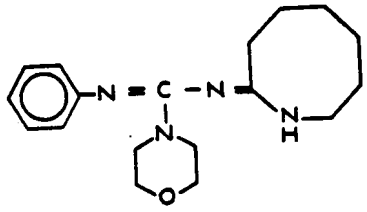
236.8 Ring chalcogen in the additional hetero ring (e.g., oxazole, etc.):
This subclass is indented under subclass 235.5. Subject matter in which the additional hetero ring also contains a ring chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

(1) Note. An example of an active ingredient provided for herein is:



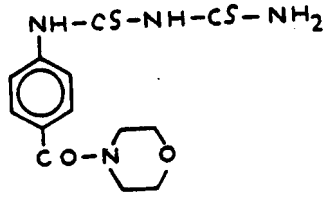
237.2 The additional hetero ring is attached indirectly to the morpholine ring by an acyclic chain having a hetero atom as a chain member:

(1) Note. An example of an active ingredient provided for herein is:



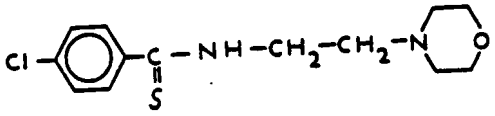
237.5 Having -C(=X)-, wherein X is chalcogen, bonded directly to the morpholine ring:
This subclass is indented under subclass 231.2. Subject matter in which the morpholine ring is bonded directly to-C(=X)-, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

(1) Note. An example of an active ingredient provided for herein is:



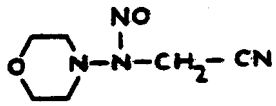
237.8 Nitrogen attached indirectly to the morpholine ring by acyclic nonionic bonding:
This subclass is indented under subclass 231.2. Subject matter in which the morpholine ring is attached indirectly to nitrogen by acyclic nonionic bonding.

(1) Note. An example of an active ingredient provided for herein is:



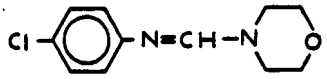
238.2 Chalcogen attached directly to the nitrogen by nonionic bonding:
This subclass is indented under subclass 237.8. Subject matter in which the nitrogen is attached directly to chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) by nonionic bonding.

(1) Note. An example of an active ingredient provided for herein is:



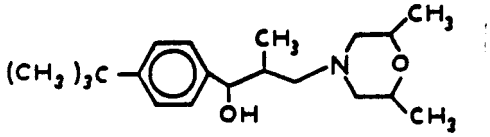
238.5 The nitrogen is double or triple bonded directly to carbon:
This subclass is indented under subclass 237.8. Subject matter in which carbon is bonded directly to the nitrogen by a double or triple bond.

(1) Note. An example of an active ingredient provided for herein is:



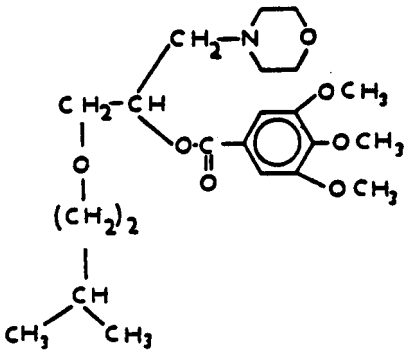
238.8 Chalcogen attached indirectly to the morpholine ring by acyclic nonionic bonding:
This subclass is indented under subclass 231.2. Subject matter in which the morpholine ring is attached indirectly to chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) by acyclic nonionic bonding.

(1) Note. An example of an active ingredient provided for herein is:



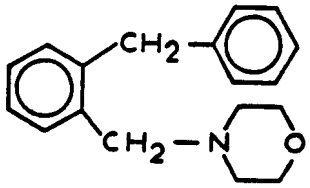
239.2 The chalcogen is bonded directly to two carbon atoms:
This subclass is indented under subclass 238.8. Subject matter in which each of two carbon atoms is bonded directly to the chalcogen.

(1) Note. An example of an active ingredient provided for herein is:



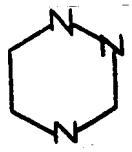
239.5 Carbocyclic ring attached indirectly to the morpholine ring by nonionic bonding:
This subclass is indented under subclass 231.2. Subject matter in which the morpholine ring is attached indirectly to a carbocyclic ring by nonionic bonding.

(1) Note. An example of an active ingredient provided for herein is:



241 Hetero ring is six-membered consisting of three nitrogens and three carbon atoms:
This subclass is indented under subclass 183. Subject matter wherein the active ingredient contains a six-membered heterocyclic nucleus consisting of three nitrogen atoms and three carbon atoms.

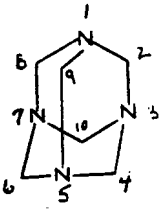
242 Asymmetrical (e.g., 1,2,4-triazine, etc.):
This subclass is indented under subclass 241. Subject matter wherein the heterocyclic ring is asymmetrical e.g., (1,2,4- triazine)



, etc.

243 Polycyclo ring system having the hetero ring as one of the cyclos:
This subclass is indented under subclass 242. Subject matter wherein the triazine is a part of a fused ring or bridged ring system.

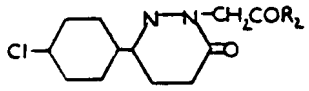
244 Hexamethylenetetramines:
This subclass is indented under subclass 241. Subject matter wherein the active ingredient comprises the following structure (i.e., hexamethylenetertramines).



245 Nitrogen bonded directly to ring carbon of the hetero ring:
This subclass is indented under subclass 241. Subject matter wherein the six-membered heterocyclic compound has nitrogen bonded directly to at least one of the ring carbons.

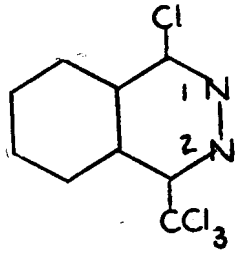
246 Polycyclo ring system having a 1,3,5-triazine as one of the cyclos:
This subclass is indented under subclass 241. Subject matter wherein the six-membered heterocyclic compound is a 1,3,5-triazine which is a part of a fused ring or bridged ring system.

247 Hetero ring is six-membered consisting of two nitrogens and four carbon atoms (e.g., pyridazines, etc.):
This subclass is indented under subclass 183. Subject matter wherein the active ingredient has a six-membered heterocyclic nucleus which consists of two nitrogen and four carbon atoms, e.g.,



,etc.

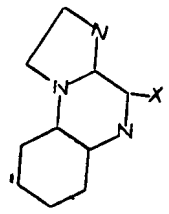
248 Polycyclo ring system having a 1,2-or 1,4-diazine as one of the cyclos:
This subclass is indented under subclass 247. Subject matter wherein the six-membered heterocyclic ring is a part of a fused ring or bridged ring system wherein the two nitrogens occupy the 1,2, or 1,4-positions of the diazine ring, e.g.,



, etc.

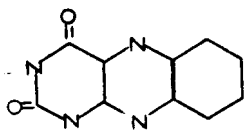
249 1,4-diazine as one of the cyclos:
This subclass is indented under subclass 248. Subject matter wherein a 1,4-diazine ring is a part of the fused or bridged ring system.

250 At least three rings in the polycyclo ring system:
This subclass is indented under subclass 249. Subject matter wherein the active ingredient is a tricyclo and has the 1,4-diazine nucleus as one of the cyclos, e.g.,



,etc.

251 Isoalloxazine (e.g., riboflavins, vitamin B2, etc.):
This subclass is indented under subclass 250. Subject matter in which the 1,4, diazine is part of a radical having the following structure:



(1) Note. In a derivative, the ring structure and carbonyl moieties must remain intact. Any position on the ring may be substituted.

(2) Note. This subclass provides for a vitamin B_2 (or G) composition.

(3) Note. A patent with a claim directed to a riboflavin composition will be placed here and not in subclass 23.

252.01 1,2-diazines attached directly or indirectly to an additional hetero ring by nonionic bonding:
This subclass is indented under subclass 247. Subject matter wherein the six-membered hetero ring is a 1,2 diazine ring which is attached directly or indirectly to an additional hetero ring by nonionic bonding.

SEE OR SEARCH CLASS:
544, Carbon Compounds, subclasses 224 through 241 for compounds which include a 1,2-diazine ring.

252.02 The additional hetero ring is a diazine:
This subclass is indented under subclass 252.01. Subject matter wherein the additional hetero ring is a six-membered hetero ring consisting of two nitrogens and four carbon atoms.

252.03 The additional hetero ring is six-membered consisting of one nitrogen and five carbon atoms:
This subclass is indented under subclass 252.01. Subject matter wherein the additional hetero ring consists of five carbon atoms and one nitrogen atom.

252.04 Polycyclo ring system having the additional six-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 252.03. Subject matter wherein the additional six-membered hetero ring is a cyclo of a polycyclo ring system.

252.05 The additional hetero ring is a five-membered nitrogen containing hetero ring:
This subclass is indented under subclass 252.01. Subject matter wherein the additional hetero ring has five members, at least one of which is nitrogen.

252.06 Polycyclo ring system having the additional five-membered hetero ring as one of the cyclos:

This subclass is indented under subclass 252.05. Subject matter wherein the additional nitrogen containing five-membered hetero ring is a cyclo of a polycyclo ring system.

252.1 1,4 diazines:

This subclass is indented under subclass 247. Subject matter wherein the six-membered hetero ring is a 1, 4-diazine ring..

SEE OR SEARCH CLASS:

544, Carbon Compounds, subclasses 336 through 410, for compounds which include a 1,4-diazine ring.

252.11 Plural 1,4-diazine rings attached directly or indirectly to each other by nonionic bonding:

This subclass is indented under subclass 252.10. Subject matter wherein an additional 1,4-diazine ring is attached directly or indirectly by nonionic bonding to the 1,4-diazine ring.

252.12 Piperazines (i.e. fully hydrogenated 1,4-diazines):

This subclass is indented under subclass 252.10. Subject matter wherein the 1,4-diazine ring is fully saturated.

252.13 Additional hetero ring attached directly or indirectly to the piperazine ring by nonionic bonding:

This subclass is indented under subclass 252.12. Subject matter wherein the piperazine ring is attached directly or indirectly to an additional hetero ring by nonionic bonding.

252.14 The additional hetero ring is a 1,3-diazine ring:

This subclass is indented under subclass 252.13. Subject matter wherein the additional hetero ring consists of four carbon atoms and two nitrogens; the nitrogens are in the 1- and 3-positions of the ring.

252.15 Spiro ring system containing:

This subclass is indented under subclass 252.14. Subject matter wherein the active ingredient containing the diazine rings includes a spiro ring system.

(1) Note. Neither the 1,4-diazine ring nor the 1,3-diazine ring has to be part of the spiro ring system.

252.16 Polycyclo ring system having the additional 1,3-diazine ring as one of the cyclos:

This subclass is indented under subclass 252.14. Subject matter wherein the additional 1,3-diazine ring is a cyclo of a polycyclo ring system.

252.17 The polycyclo ring system is quinazoline (including hydrogenated):

This subclass is indented under subclass 252.16. Subject matter wherein the 1,3-diazine is part of a quinazoline ring system, which may be hydrogenated.

252.18 Additional six-membered hetero consisting of five ring carbons and one ring nitrogen attached directly or indirectly to the 1,3-diazine by nonionic bonding:

This subclass is indented under subclass 252.14. Subject matter wherein the 1,3-diazine ring is attached directly or indirectly by nonionic bonding to an additional six-membered hetero ring that consists of five ring carbons and one ring nitrogen.

252.19 Five-membered nitrogen hetero ring attached directly or indirectly to the 1,3-diazine ring by nonionic bonding:

This subclass is indented under subclass 252.14. Subject matter wherein the 1,3-diazine ring is attached directly or indirectly by nonionic bonding to an additional five-membered nitrogen hetero ring.

252.2 Oxygen hetero ring attached directly or indirectly to the 1,3-diazine ring by nonionic bonding:

This subclass is indented under subclass 252.14. Subject matter wherein the 1,3 diazine ring is attached directly or indirectly by nonionic bonding to a hetero ring having oxygen as a ring member.

253.01 The additional hetero ring is six-membered consisting of one nitrogen and five carbon atoms:
This subclass is indented under subclass 252.13. Subject matter wherein the additional hetero ring has exactly six members and consists of five carbon atoms and one nitrogen atom.

253.02 Polycyclo ring system having the additional six-membered nitrogen hetero ring as one of the cyclos:
This subclass is indented under subclass 253.01. Subject matter wherein the additional six-membered hetero ring consisting of five ring carbons and one ring nitrogen is a cyclo of a polycyclo ring system.

253.03 Tricyclo ring system having the additional six-membered nitrogen hetero ring as one of the cyclos:
This subclass is indented under subclass 253.02. Subject matter wherein the polycyclo ring system containing the additional six-membered hetero ring consisting of five ring carbons and one ring nitrogen has exactly three cyclos.

253.04 Bicyclo ring system having the additional six-membered nitrogen hetero ring as one of the cyclos:
This subclass is indented under subclass 253.02. Subject matter wherein the polycyclo ring system containing the additional six-membered hetero ring consisting of five ring carbons and one ring nitrogen has exactly two cyclos.

253.05 Isoquinolines (including hydrogenated):
This subclass is indented under subclass 253.04. Subject matter wherein the bicyclo ring system is an isoquinoline ring system, which may be hydrogenated.

253.06 Quinolines (including hydrogenated):
This subclass is indented under subclass 253.04. Subject matter wherein the bicyclo ring system is a quinoline ring system which may be hydrogenated.

253.07 Chalcogen bonded directly to carbon of the hetero ring of the quinoline ring system:
This subclass is indented under subclass 253.06. Subject matter wherein a chalcogen atom (i.e. oxygen, sulfur, selenium, or tellurium) is bonded directly to a ring carbon of the hetero ring of the quinoline ring system.

253.08 Having -C (=X)-, wherein X is chalcogen, bonded directly to carbon of the hetero ring of thequinoline ring system:
This subclass is indented under subclass 253.07. Subject matter wherein a -C(=X)- group, wherein X is chalcogen (i.e. oxygen, sulfur, selenium, or tellurium), is bonded directly to carbon of the hetero ring of the quinoline ring system.

253.09 Five-membered nitrogen hetero ring attached directly or indirectly to the piperazine ring by nonionic bonding:
This subclass is indented under subclass 253.01. Subject matter wherein the piperazine ring is attached directly or indirectly by nonionic bonding to a five-membered hetero ring having ring nitrogen.

253.1 The five-membered nitrogen hetero ring has chalcogen as a ring member:
This subclass is indented under subclass 253.09. Subject matter wherein the five-membered nitrogen hetero ring also contains chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) as a member of the hetero ring.

253.11 Chalcogen hetero ring attached directly or indirectly to the piperazine ring by nonionic bonding:
This subclass is indented under subclass 253.01. Subject matter wherein a hetero ring having chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) as a ring member is attached directly or indirectly to the piperazine ring by nonionic bonding.

253.12 Chalcogen bonded directly to ring carbon of the additional six-membered nitrogen containing hetero ring:
This subclass is indented under subclass 253.01. Subject matter wherein the additional six-membered nitrogen containing hetero ring consisting of five ring carbons and one ring nitrogen has a chalcogen (i.e. oxygen, sulfur,

selenium, or tellurium) bonded directly to carbon of its ring.

253.13 Having -C (=X)-, wherein X is chalcogen, bonded directly to the additional six-membered nitrogen hetero ring:
This subclass is indented under subclass 253.01. Subject matter wherein the additional six-membered nitrogen hetero ring consisting of five ring carbons and one ring nitrogen has a -C(=X)- group, wherein X is chalcogen (i.e. oxygen, sulfur, selenium, or tellurium), bonded directly thereto.

254.01 The additional hetero ring is five-membered having ring nitrogen:
This subclass is indented under subclass 252.13. Subject matter wherein the additional hetero ring has exactly five members, including ring nitrogen.

254.02 The additional five-membered hetero ring also has chalcogen as a ring member:
This subclass is indented under subclass 254.01. Subject matter wherein nitrogen and chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) are ring members of the additional five-membered hetero ring.

254.03 The additional five-membered hetero ring consists of two ring carbons, two ring nitrogens, and one ring chalcogen (e.g., oxadiazolyl, thiadiazolyl, etc.):
This subclass is indented under subclass 254.02. Subject matter wherein the additional five-membered hetero ring has two nitrogens and one chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) as the ring hetero atoms.

254.04 The additional five-membered hetero ring consists of three ring carbons, and of nitrogen and chalcogen in adjacent ring positions (e.g., isoxaazolyl, isothiazolyl, etc.):
This subclass is indented under subclass 254.02. Subject matter wherein one chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) and one nitrogen are adjacent ring members of the additional five-membered hetero ring, and the remaining ring members are carbon.

254.05 Plural nitrogens in the additional five-membered hetero ring:
This subclass is indented under subclass 254.01. Subject matter wherein the additional five-membered hetero ring contains at least two ring nitrogen atoms.

254.06 Polycyclo ring system having the plural nitrogen containing additional five-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 254.05. Subject matter wherein the additional plural nitrogen containing five-membered hetero ring is a cyclo of a polycyclo ring system.

254.07 Chalcogen hetero ring attached directly or indirectly to the piperazine ring by nonionic bonding:
This subclass is indented under subclass 254.05. Subject matter wherein a chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) containing hetero ring is attached directly or indirectly to the piperazine ring by nonionic bonding.

254.08 Polycyclo ring system having the additional five-membered nitrogen hetero ring as one of the cyclos:
This subclass is indented under subclass 254.01. Subject matter wherein the five-membered hetero ring is a cyclo of a ploycyclo ring system.

254.09 Indole ring system (including hydrogenated) attached directly or indirectly to the piperazine ring by nonionic bonding:
This subclass is indented under subclass 254.08. Subject matter wherein the polycyclo ring system consists of exactly two ortho-fused rings with the nitrogen being in the 1-position of the five-membered hetero ring, and the second ring consisting of six carbon atoms.

254.1 Ring oxygen in the additional hetero ring:
This subclass is indented under subclass 252.13. Subject matter wherein the additional hetero ring has at least one ring oxygen atom.

254.11 Polycyclo ring system having the additional oxygen hetero ring as one of the cyclos:
This subclass is indented under subclass 254.10. Subject matter wherein the additional oxygen containing hetero ring is a cyclo of a polycyclo ring system.

255.01 Nitrogen or -C(=X)-, wherein X is chalcogen, bonded directly to the piperazine ring:
This subclass is indented under subclass 252.12. Subject matter wherein nitrogen or a -C(=X)- group, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), is bonded directly to the piperazine ring.

255.02 Chalcogen bonded directly to a piperazine ring carbon:
This subclass is indented under subclass 252.12. Subject matter wherein a chalcogen (i.e. oxygen, sulfur, selenium, or tellurium) is bonded directly to carbon of the piperazine ring.

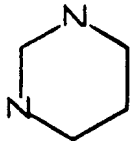
255.03 Carbocyclic ring bonded directly to the piperazine ring:
This subclass is indented under subclass 252.12. Subject matter wherein the piperazine ring is bonded directly to a carbocyclic ring.

255.04 Plural carbocyclic rings bonded directly to the same acyclic carbon atom which is attached directly or indirectly to the piperazine ring by nonionic bonding:
This subclass is indented under subclass 252.12. Subject matter wherein the piperazine ring is attached directly or indirectly by nonionic bonding to an acyclic carbon atom which is bonded to plural carbocyclic rings.

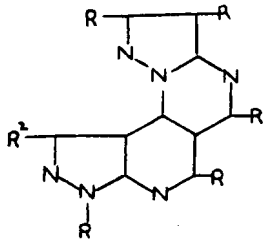
255.05 Additional hetero ring attached directly or indirectly to the 1,4-diazine ring by nonionic bonding:
This subclass is indented under subclass 252.10. Subject matter wherein the 1,4-diazine ring is attached directly or indirectly by nonionic bonding to an additional hetero ring

255.06 Nitrogen or -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the 1,4- diazine ring:
This subclass is indented under subclass 252.10. Subject matter wherein a ring carbon of the 1,4-diazine ring is bonded directly to a nitrogen atom or a -C(=X)- group, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

256 1,3-diazines (e.g., pyrimidines, etc.):
This subclass is indented under subclass 247. Subject matter in which the ring nitrogen atoms occupy the 1,3 positions of the diazine nucleus i.e.,



257 Polycyclo ring system having 1,3-diazine as one of the cyclos:
This subclass is indented under subclass 256. Subject matter in which the 1,3 - diazine is a part of a polycyclo ring system, e.g.,



,etc.

258.1 Bicyclo ring system having the 1,3-diazine as one of the cyclos:
This subclass is indented under subclass 257. Subject matter wherein the polycyclo ring system consists of two rings.

259.1 A ring nitrogen is shared by the two cyclos of the bicyclo ring system (e.g., pyrrolo[1,2-a]pyrimidine, imidazo[1,2-a]pyrimidine, etc.):
This subclass is indented under subclass 258.1. Subject matter wherein the 1,3-diazine ring shares a ring nitrogen with the second ring of the bicyclo ring system.

259.2 Ring chalcogen in the bicyclo ring system:
This subclass is indented under subclass 259.1. Subject matter wherein the ring that shares a ring nitrogen with the 1,3-diazine ring contains a ring chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

259.3 The shared ring nitrogen is bonded directly to a ring nitrogen of the second ring of the bicyclo ring system (e.g., pyrazolo[1,5-a]pyrimidine , etc.):
This subclass is indented under subclass 259.1. Subject matter wherein the ring nitrogen shared by the 1,3-diazine ring with the second ring is bonded directly to a ring nitrogen of the second ring.

259.31 The second ring of the bicyclo ring system is a five-membered hetero ring containing three ring nitrogens (e.g., triazolo[1,5-a]pyrimidine, etc.):
This subclass is indented under subclass 259.3. Subject matter wherein the second ring that shares a ring nitrogen with the 1,3-diazine ring is a five-membered hetero ring containing three ring nitrogens.

259.4 The second ring of the bicyclo ring system is six-membered consisting of five ring carbons and the shared ring nitrogen (e.g., pyrido[1,2-a]pyrimidine):
This subclass is indented under subclass 259.1. Subject matter wherein the second ring that shares a ring nitrogen with the 1,3-diazine ring is six-membered containing the shared nitrogen as its only hetero atom.

259.41 Additional hetero ring is attached directly or indirectly to the bicyclo ring system by nonionic bonding:
This subclass is indented under subclass 259.4. Subject matter wherein the bicyclo ring system is attached directly or indirectly by nonionic bonding to an additional hetero ring.

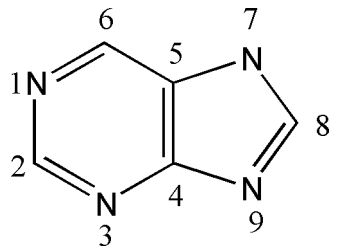
259.5 Chalcogen bonded directly to a ring carbon of the 1,3-diazine ring:
This subclass is indented under subclass 259.1. Subject matter wherein a ring carbon of the 1,3-diazine ring is bonded directly to a chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

260.1 Ring chalcogen in the bicyclo ring system:
This subclass is indented under subclass 258.1. Subject matter wherein the second ring of the bicyclo ring system contains a ring chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

261.1 Exactly five ring nitrogens in the bicyclo ring system (e.g., triazolo[4,5-d]pyrimidine, etc.):
This subclass is indented under subclass 258.1. Subject matter wherein the bicyclo ring system has exactly five ring nitrogens.

262.1 Exactly four ring nitrogens in the bicyclo ring system:
This subclass is indented under subclass 258.1. Subject matter wherein the bicyclo ring system has exactly four ring nitrogens.

263.1 Purine (including hydrogenated):
This subclass is indented under subclass 262.1. Subject matter wherein the bicyclo ring system is the purine nucleus, (illustrated below) including hydrogenated forms thereof.



SEE OR SEARCH THIS CLASS, SUBCLASS:

45, for bio-affecting or body treating compositions containing as the active ingredient N-glycoside with the aglycone portion being a purine or a substituted purine.

263.2 Additional hetero ring attached directly or indirectly to the purine ring system by nonionic bonding:
This subclass is indented under subclass 263.1. Subject matter wherein the purine ring system is attached directly or indirectly to an additional hetero ring.

263.21 The additional hetero ring is a 1,3-diazine ring (including hydrogenated):
This subclass is indented under subclass 263.2. Subject matter wherein a 1,3-diazine ring is the additional hetero ring, including hydrogenated compounds thereof.

263.22 The additional hetero ring is six-membered consisting of one nitrogen and five carbons:
This subclass is indented under subclass 263.2. Subject matter wherein the additional hetero ring is six-membered consisting of five carbons and one nitrogen.

263.23 The additional hetero ring consists of carbon and chalcogen as the only ring members:
This subclass is indented under subclass 263.2. Subject matter wherein the additional hetero ring includes at least one atom each of chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) and carbon, and contains no other elements as ring members.

263.24 The additional chalcogen containing hetero ring is part of a polycyclo ring system:
This subclass is indented under subclass 263.23. Subject matter wherein the additional chalcogen containing hetero ring is part of a polycyclo ring system.

263.3 Chalcogen bonded directly to a ring carbon of the purine ring system:
This subclass is indented under subclass 263.1. Subject matter wherein a ring carbon of the purine ring system is directly bonded to a chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

263.31 With preservative, stabilizer, or an additional active ingredient:
This subclass is indented under subclass 263.3. Subject matter wherein an additional active ingredient, a preservative, or a stabilizer is present in the composition.

263.32 Nitrogen containing hetero ring in the preservative, stabilizer, or additional active ingredient:
This subclass is indented under subclass 263.31. Subject matter wherein the preservative, stabilizer, or additional active ingredient is a nitrogen containing hetero ring compound.

263.33 Chalcogen bonded directly to the 2-, 6-, and 8- positions of the purine ring system:
This subclass is indented under subclass 263.3. Subject matter wherein each of the 2-, 6-, and 8- positions of the purine ring system is bonded directly to chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

263.34 Chalcogen bonded directly to the 2- and 6- positions of the purine ring system (e.g., theophylline, etc.):
This subclass is indented under subclass 263.3. Subject matter wherein each of the 2- and 6- positions of the purine ring system is bonded directly to chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

263.35 Nitrogen attached indirectly to the purine ring system by acyclic nonionic bonding:
This subclass is indented under subclass 263.34. Subject matter wherein nitrogen is indirectly attached to the purine ring system by acyclic nonionic bonding.

263.36 Chalcogen attached indirectly to the purine ring system by acyclic nonionic bonding:
This subclass is indented under subclass 263.34. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is indirectly attached to the purine ring system by acyclic nonionic bonding.

263.37 Nitrogen bonded directly to a ring carbon of the purine ring system (e.g., guanine, etc.):
This subclass is indented under subclass 263.3. Subject matter wherein a ring carbon of the purine ring system is directly bonded to a nitrogen.

263.38 Chalcogen attached indirectly to the 9- position of the purine ring system by acyclic nonionic bonding:
This subclass is indented under subclass 263.37. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is indirectly attached to the 9- position of the purine ring system by acyclic nonionic bonding.

263.4 Nitrogen bonded directly to ring carbon of the purine ring system (e.g., adenine, etc.):
This subclass is indented under subclass 263.1. Subject matter wherein a ring carbon of the

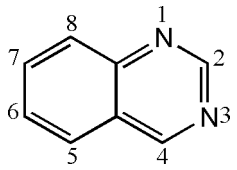
purine ring system is directly bonded to nitrogen.

264.1 The other cyclo in the bicyclo ring system is a pyridine ring (including hydrogenated) (e.g., pyrido[2,3-d]pyrimidine, etc.):
This subclass is indented under subclass 258.1. Subject matter wherein the second ring of the bicyclo ring system containing the 1,3-diazine ring is six-membered consisting of one nitrogen and five carbons, including hydrogenated compounds thereof.

264.11 Nitrogen bonded directly to ring carbon of the 1,3-diazine ring of the bicyclo ring:
This subclass is indented under subclass 264.1. Subject matter wherein a ring carbon of the 1,3-diazine ring of the bicyclo ring system is directly bonded to nitrogen.

265.1 The other cyclo in the bicyclo ring system is a pyrrole ring (including hydrogenated) (e.g., pyrrolo[3,2-d]pyrimidine, etc.):
This subclass is indented under subclass 258.1. Subject matter wherein the second ring of the bicyclo ring system containing the 1,3-diazine ring is five-membered consisting of one nitrogen and four carbons, including hydrogenated compounds thereof.

266.1 Quinazoline (including hydrogenated) (i.e., the second cyclo in the bicyclo ring system is an ortho-fused six-membered carbocycle):
This subclass is indented under subclass 258.1. Subject matter wherein the bicyclo ring system is the quinazoline nucleus (illustrated below) including hydrogenated compounds thereof.



266.2 Additional hetero ring attached directly or indirectly to the quinazoline ring system by nonionic bonding:
This subclass is indented under subclass 266.1. Subject matter wherein the quinazoline ring system is attached directly or indirectly to an additional hetero ring by nonionic bonding.

266.21 The additional hetero ring is six-membered consisting of one nitrogen and five carbons:
This subclass is indented under subclass 266.2. Subject matter wherein the additional hetero ring is six-membered consisting of five carbons and one nitrogen.

(1) Note. The additional six membered hetero ring may be part of a polycyclo ring system (e.g., isoquinoline, etc.).

266.22 Piperidinyl or tetrahydropyridyl:
This subclass is indented under subclass 266.21. Subject matter wherein the six membered hetero ring is a piperidine or a tetrahydropyridine ring that is attached directly or indirectly to the quinazoline ring system through its ring carbon.

266.23 The additional hetero ring is five-membered consisting of carbon and plural nitrogens as the only ring members:
This subclass is indented under subclass 266.2. Subject matter wherein the additional hetero ring has five members containing at least one carbon and plural nitrogens as the only ring members.

266.24 The additional hetero ring consists of carbon and chalcogen as the only ring members:
This subclass is indented under subclass 266.2. Subject matter wherein the additional hetero ring includes at least one atom each of chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) and carbon, and contains no other elements as ring members.

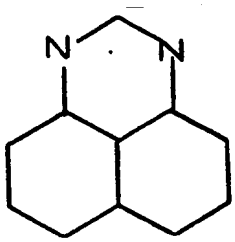
266.3 Chalcogen bonded directly to a ring carbon of the 1,3-diazine ring of the quinazoline ring system:
This subclass is indented under subclass 266.1. Subject matter wherein a ring carbon of the 1,3-diazine ring of the quinazoline ring system is directly bonded to a chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

266.31 Carbocyclic ring bonded directly to a ring carbon of the quinazoline ring system:
This subclass is indented under subclass 266.3. Subject matter wherein a ring carbon of the quinazoline ring system is directly bonded to a carbocyclic ring.

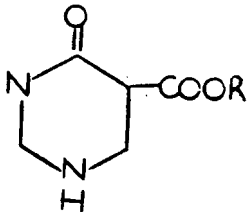
266.4 Nitrogen bonded directly to ring carbon of the 1,3-diazine ring of the quinazoline ring system:
This subclass is indented under subclass 266.1. Subject matter wherein a ring carbon of the 1,3-diazine ring of the quinazoline ring system is directly bonded to nitrogen.

267 Tricyclo ring system having 1,3-diazine as one of the cyclos:
This subclass is indented under subclass 257. Subject matter wherein the 1,3-diazine is a part of a tricyclo ring system.

268 Perimidines (including hydrogenated):
This subclass is indented under subclass 267. Subject matter wherein the active ingredient contains the following structure:

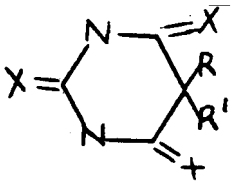


269 Pyrimidines with chalcogen bonded directly to a ring carbon of said pyrimidine moiety:
This subclass is indented under subclass 256. Subject matter wherein the 1,3-diazine has a chalcogen bonded directly to a ring carbon thereof, e.g.,



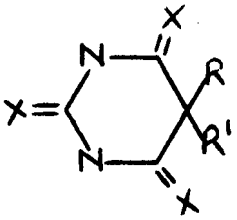
,etc.

270 Barbituric acid or derivative (including thioanalogs):
This subclass is indented under subclass 269. Subject matter wherein the 1,3-diazine is of the structure, illustrated below, wherein X is oxygen or sulfur or the enol form thereof and R and/or R' are hydrogen, alkyl or aryl.



(1) Note. For this subclass, the three keto groups must be present on the 1,3 diazine ring.

271 Two or more barbituric acid compounds or with an additional active ingredient or stabilizer:
This subclass is indented under subclass 270. Subject matter which contains two or more compounds each having the moiety, as shown below, or one compound having said moiety and an additional organic active ingredient or stabilizing agent.

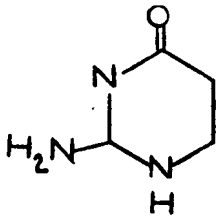


(1) Note. Included herein is the combination of barbituric acid and a salt thereof and complexes of two or more active ingredients, or active ingredient complexed with stabilizing agent.

(2) Note. Potentiating and synergistic agents are considered active ingredients.

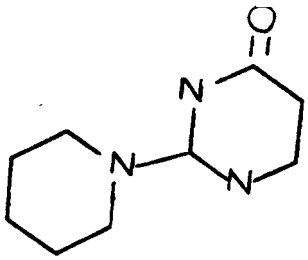
(3) Note. See section II, Glossary, for the definition of a stabilizing agent.

272 Nitrogen bonded directly to the 1,3-diazine at 2-position:
This subclass is indented under subclass 269. Subject matter wherein a nitrogen is bonded directly to the 1,3-diazine at the 2- position, e.g.,



,etc.

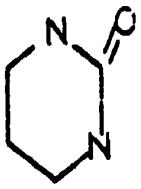
273 **The nitrogen is part of a hetero ring:**
This subclass is indented under subclass 272. Subject matter wherein the nitrogen is a part of a heterocyclic ring, e.g.,



,etc.

274 **Chalcogen bonded directly to pyrimidine at 2-position:**
This subclass is indented under subclass 269. Subject matter wherein a chalcogen is directly bonded to the 2-position of the pyrimidine.

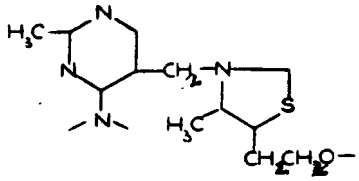
(1) Note. This subclass includes for example:



,etc.

275 **Nitrogen bonded directly to the 1,3-diazine at 2-position by a single bond:**
This subclass is indented under subclass 256. Subject matter wherein the nitrogen is directly bonded to the 1,3-diazine at the 2-position by a single bond.

276 **Thiamines (e.g., vitamin B1. etc.):**
This subclass is indented under subclass 256. Subject matter wherein the 1,3 diazine compound contains the structure, as shown below, e.g., vitamin B1, etc.



277 **Hetero ring is six-membered consisting of one nitrogen and five carbon atoms:**
This subclass is indented under subclass 183. Subject matter which contains a six-membered heterocyclic ring consisting of one nitrogen and five carbon atoms.

278 **Spiro ring system:**
This subclass is indented under subclass 277. Subject matter which contains a spiro ring system.

279 **Polycyclo ring system having the six-membered hetero ring as one of the cyclos:**
This subclass is indented under subclass 277. Subject matter wherein the six-membered hetero ring is one of the cyclos of a polycyclo ring system.

280 **Pentacyclo ring system having the six-membered hetero ring as one of the cyclos:**
This subclass is indented under subclass 279. Subject matter wherein the polycyclo ring system consists of exactly five rings.

281 Two of the cyclos share at least three ring members, (i.e., bridged):
This subclass is indented under subclass 280. Subject matter wherein two cyclos of the polycyclo ring system share at least three ring members.

282 One of the five cyclos is five-membered and includes ring chalcogen (e.g., codeine, morphine, etc.):
This subclass is indented under subclass 281. Subject matter wherein one of the pentacyclo ring system is a five-membered hetero ring which contains ring chalcogen, (i.e., oxygen, sulfur, selenium or tellurium).

283 Ring nitrogen in the pentacyclo ring system is shared by five-membered cyclo and six-membered cyclo (e.g., vincamine, etc.):
This subclass is indented under subclass 280. Subject matter wherein the ring nitrogen of the six-membered hetero ring is additionally a member of a five-membered cyclo in the pentacyclo ring system.

284 Tetracyclo ring system having the six-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 279. Subject matter wherein the polycyclo ring system consists of exactly four rings.

285 Plural hetero atoms in the tetracyclo ring system (e.g., acronycines, etc.):
This subclass is indented under subclass 284. Subject matter wherein the tetracyclo ring system contains at least one ring hetero atom in addition to the ring nitrogen of the six-membered hetero ring.

286 Two of the cyclos share at least three ring members (i.e., bridged):
This subclass is indented under subclass 286. Subject matter wherein two cyclos of the polycyclo ring system share at least three ring members.

287 Three or more hetero atoms in the tetracyclo ring system:
This subclass is indented under subclass 285. Subject matter wherein the tetracyclo ring system contains at least two ring hetero atoms in addition to the ring nitrogen of the six-membered hetero ring.

288 Ring carbon is shared by three of the cyclos:
This subclass is indented under subclass 285. Subject matter wherein one ring carbon is a member of three of the cyclos in the tetracyclo ring system (i.e., peri-fusion).

289 Two of the cyclos share at least three ring members (i.e., bridged) (e.g., morphinans etc.):
This subclass is indented under subclass 284. Subject matter wherein two cyclos of the polycyclo ring system share at least three ring carbons.

290 Tricyclo ring system having the six-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 279. Subject matter wherein the polycyclo ring system consists of exactly three rings.

291 Plural hetero atoms in the tricyclo ring system:
This subclass is indented under subclass 290. Subject matter wherein the tricyclo ring system contains at least one ring hetero atom in addition to the ring nitrogen of the six-membered hetero ring.

292 Plural ring nitrogens in the tricyclo ring system:
This subclass is indented under subclass 291. Subject matter wherein the tricyclo ring system contains at least two ring nitrogens.

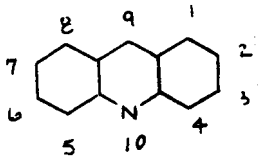
293 Three or more hetero atoms in the tricyclo ring system:
This subclass is indented under subclass 292. Subject matter wherein the tricyclo ring system contains at least three ring hetero atoms.

294 Ring nitrogen is shared by two of the cyclos:
This subclass is indented under subclass 290. Subject matter wherein a ring nitrogen is a member of two of the cyclos in the tricyclo ring system.

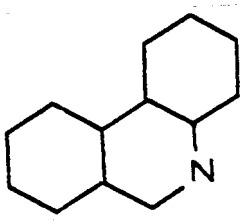
295 Two of the cyclos share at least three ring carbons (i.e., bridged) (e.g., benzomorphans, etc.):
This subclass is indented under subclass 290. Subject matter wherein two cyclos of the polycyclo ring system share at least three ring carbons.

296 **Ring carbon is shared by each of the three cyclos (e.g., 1,8-naphthalimides, etc.):**
This subclass is indented under subclass 290. Subject matter wherein a ring carbon is a member of each of the cyclos of the tricyclo ring system.

297 **Acridines (including hydrogenated):**
This subclass is indented under subclass 290. Subject matter wherein the tricyclo ring system has the following basic structure, which may contain double bonds between ring members:



298 **Phenathridines (including hydrogenated):**
This subclass is indented under subclass 290. Subject matter wherein the tricyclo ring system has the following structure, which may contain double bonds between ring members:



299 **Bicyclo ring system having the six-membered hetero ring as one of the cyclos:**
This subclass is indented under subclass 279. Subject matter wherein the polycyclo ring system consists of exactly two ring.

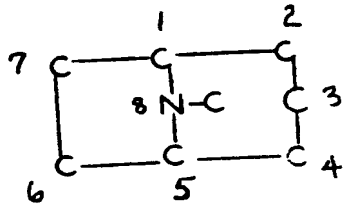
300 **Plural hetero atoms in the bicyclo ring system:**
This subclass is indented under subclass 299. Subject matter wherein the bicyclo ring system includes at least one ring hetero atom in addition to the ring nitrogen of the six-membered hetero ring.

301 **Ring sulfur in the bicyclo ring system:**
This subclass is indented under subclass 300. Subject matter wherein the bicyclo ring system contains ring sulfur.

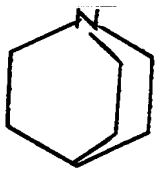
302 **Ring oxygen in the bicyclo ring system:**
This subclass is indented under subclass 300. Subject matter wherein the bicyclo ring system contains ring oxygen.

303 **Exactly three ring nitrogens in the bicyclo ring system:**
This subclass is indented under subclass 300. Subject matter wherein the bicyclo ring system contains exactly three ring nitrogens.

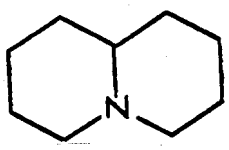
304 **Tropanes (including nor or dehydro forms):**
This subclass is indented under subclass 299. Subject matter wherein the bicyclo ring system has the following basic structure:



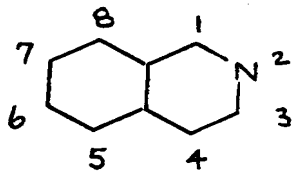
305 **Quinuclidines (including unsaturation):**
This subclass is indented under subclass 299. Subject matter wherein the bicyclo ring system has the following basic structure, which may contain double bonds between ring members:



306 **Quinolizines (including hydrogenated):**
This subclass is indented under subclass 299. Subject matter wherein the bicyclo ring system has the following basic structure, which may contain double bonds between ring members:



307 Isoquinolines (including hydrogenated):
This subclass is indented under subclass 299. Subject matter wherein the bicyclo ring system has the following structure, which may contain double bonds between ring members.

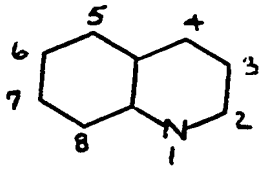


308 Plural isoquinoline ring systems attached directly or indirectly to each other by nonionic bonding:
This subclass is indented under subclass 307. Subject matter which contains at least two isoquinoline ring systems that are attached directly or indirectly to each other by nonionic bonding.

309 Chalcogen attached directly to the six-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 307. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium or tellurium) is attached directly to the six-membered hetero ring of the isoquinoline ring system by nonionic bonding.

310 Nitrogen, other than as nitro or nitroso, attached directly to the isoquinoline ring system by nonionic bonding:
This subclass is indented under subclass 307. Subject matter wherein nitrogen, except as a member of the nitro ($-NO_2$) or nitroso (-NO) group, is attached directly to the isoquinoline ring system by nonionic bonding.

311 Quinolines (including hydrogenated):
This subclass is indented under subclass 299. Subject matter wherein the bicyclo ring system has the following basic structure, which may contain double bonds between ring members:



312 Chalcogen attached directly to the six-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 311. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium or tellurium) is attached directly to the six-membered hetero ring of the quinoline ring system by nonionic bonding.

313 Nitrogen, other than as nitro or nitroso, attached directly to the six-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 311. Subject matter wherein nitrogen, except as a member of the nitro ($-NO_2$) or nitroso (-NO) group, is attached directly to the six-membered hetero ring of the quinoline ring by nonionic bonding.

314 Additional hetero ring attached directly or indirectly to the quinoline ring system by nonionic bonding:
This subclass is indented under subclass 311. Subject matter wherein a hetero ring is attached directly or indirectly to the quinoline ring system by nonionic bonding.

(1) Note. Included herein are compounds which contain at least two quinoline ring systems that are attached directly or indirectly to each other by nonionic bonding.

315 Piperidines:
This subclass is indented under subclass 277. Subject matter wherein the six-membered hetero ring, consisting of one nitrogen and five carbons, contains no double bonds between ring members, i.e., the piperidine ring.

316 Plural piperidine rings:
This subclass is indented under subclass 315. Subject matter wherein the compound contains at least two piperidine rings.

317 Additional ring containing:
This subclass is indented under subclass 315. Subject matter which contains an additional ring.

318 The additional ring is a six-membered hetero ring consisting of one nitrogen and five carbon atoms:
This subclass is indented under subclass 317. Subject matter wherein the additional ring is a pyridine ring or partially hydrogenated pyridine ring.

319 The additional ring is one of the cyclos in a polycyclo ring system:
This subclass is indented under subclass 317. Subject matter wherein the additional ring is one of the cyclos in a polycyclo ring system.

320 Hetero ring in the polycyclo ring system:
This subclass is indented under subclass 319. Subject matter wherein the polycyclo ring system contains a hetero ring.

321 Plural hetero atoms in the polycyclo ring system:
This subclass is indented under subclass 320. Subject matter wherein the polycyclo ring system contains at least two ring hetero atoms.

322 Plural ring nitrogens in the polycyclo ring system:
This subclass is indented under subclass 321. Subject matter wherein the polycyclo ring system contains at least two ring nitrogen atoms.

323 Ring nitrogen in the polycyclo ring system:
This subclass is indented under subclass 320. Subject matter wherein the polycyclo ring system contains a ring nitrogen.

324 Ring sulfur in the polycyclo ring system:
This subclass is indented under subclass 320. Subject matter wherein the polycyclo ring system contains a ring sulfur.

325 Polycyclo ring system is tricyclo-carbocyclic:
This subclass is indented under subclass 319. Subject matter wherein the polycyclo ring system consists of three carbocyclic rings.

326 The additional ring is a hetero ring:
This subclass is indented under subclass 317. Subject matter wherein the additional ring is a hetero ring.

327 Chalcogen bonded directly to ring carbon of the piperidine ring:
This subclass is indented under subclass 317. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium or tellurium) is bonded directly to a ring carbon of the piperidine ring.

328 Plural chalcogens bonded directly to ring carbons of the piperidine ring:
This subclass is indented under subclass 327. Subject matter wherein at least two chalcogens (i.e., oxygen, sulfur, selenium or tellurium) are bonded directly to ring carbons of the piperidine rings.

329 Nitrogen attached directly to the piperidine ring by nonionic bonding:
This subclass is indented under subclass 317. Subject matter wherein nitrogen is attached directly to the piperidine ring by nonionic bonding.

330 C=X bonded directly to the piperidine ring (X is chalcogen):
This subclass is indented under subclass 317. Subject matter wherein a C=O, C=S, C=Se or C=Te group is bonded directly to the piperidine ring.

331 Nitrogen attached indirectly to the piperidine ring nonionic bonding:
This subclass is indented under subclass 317. Subject matter wherein nitrogen is attached indirectly to the piperidine ring by nonionic bonding.

332 Plural six-membered hetero rings consisting of one nitrogen and five carbon atoms:
This subclass is indented under subclass 277. Subject matter which contains at least two of the six-membered hetero rings, each consisting of one nitrogen and five carbons and having at

least one double bond between ring members, i.e., pyridine or partially hydrogenated pyridine rings.

333 Additional hetero ring other than the six-membered hetero rings:
This subclass is indented under subclass 332. Subject matter containing an additional hetero ring other than the six-membered hetero rings consisting of one nitrogen and five carbon atoms.

334 The six-membered rings are bonded directly to each other:
This subclass is indented under subclass 332. Subject matter wherein pyridine or partially hydrogenated pyridine rings are bonded directly to each other.

335 Chalcogen bonded directly to a ring carbon of the six-membered hetero ring:
This subclass is indented under subclass 332. Subject matter wherein chalcogen (i.e., oxygen sulfur, selenium, tellurium) is bonded directly to a ring carbon of a pyridine or partially hydrogenated pyridine ring.

336 Additional hetero ring containing:
This subclass is indented under subclass 277. Subject matter which contains an additional hetero ring in the compound other than the six-membered hetero ring consisting of one nitrogen and five carbons, i.e., an additional hetero ring other than a pyridine or partially hydrogenated pyridine ring.

337 The additional hetero ring is one of the cyclos in a polycyclo ring system:
This subclass is indented under subclass 336. Subject matter wherein the additional hetero ring is one of the cyclos in a polycyclo ring system.

338 Plural hetero atoms in the polycyclo ring system:
This subclass is indented under subclass 337. Subject matter wherein the polycyclo ring system contains at least two ring hetero atoms.

339 Ring nitrogen in the polycyclo ring system:
This subclass is indented under subclass 337. Subject matter wherein the polycyclo ring system contains one ring nitrogen.

340 Ring nitrogen in the additional hetero ring (e.g., oxazole, etc.):
This subclass is indented under subclass 336. Subject matter wherein the additional hetero ring contains ring nitrogens.

341 The additional hetero ring consists of two nitrogens and three carbons:
This subclass is indented under subclass 340. Subject matter wherein the additional hetero ring consists of two nitrogens and three carbons.

342 Ring sulfur in the additional hetero ring:
This subclass is indented under subclass 340. Subject matter wherein the additional hetero ring contains ring sulfur.

343 The additional hetero ring consists of one nitrogen and four carbons (e.g., nicotine, etc.):
This subclass is indented under subclass 340. Subject matter wherein the additional hetero ring consists of one nitrogen and four carbon atoms.

344 Cyano bonded directly to the six-membered hetero ring:
This subclass is indented under subclass 277. Subject matter which contains the -C=N group bonded directly to the six-membered hetero ring.

345 Chalcogen bonded directly to ring carbon of the six-membered hetero ring:
This subclass is indented under subclass 277. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium or tellurium) is bonded directly to a ring carbon of the six-membered hetero ring.

346 Chalcogen and cyclic nitrogen bonded directly to the same carbon:
This subclass is indented under subclass 345. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium or tellurium) and acyclic nitrogen are bonded directly to the same carbon.

347 Chalcogen bonded directly to chalcogen:
This subclass is indented under subclass 345. Subject matter wherein chalcogen (i.e., oxygen, sulfur, selenium or tellurium) is bonded directly to chalcogen.

348 Chalcogens bonded directly to at least two ring carbons of the six-membered hetero ring:
This subclass is indented under subclass 345. Subject matter wherein chalcogens (i.e., oxygen, sulfur, selenium or tellurium) are bonded directly to at least two ring carbons of the six-membered hetero ring.

349 Nitrogen attached directly to the six-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 345. Subject matter wherein nitrogen is attached directly to the six-membered hetero ring by nonionic bonding.

350 C=O bonded directly to the six-membered hetero ring:
This subclass is indented under subclass 345. Subject matter wherein a C=O group is bonded directly to the six-membered hetero ring.

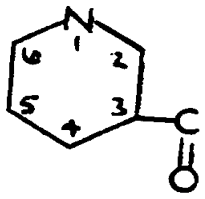
351 Nitrogen attached indirectly to the six-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 345. Subject matter wherein nitrogen is attached indirectly to the six-membered hetero ring by nonionic bonding.

352 Nitrogen attached directly to the six-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 277. Subject matter wherein nitrogen is attached directly to the six-membered hetero ring by nonionic bonding.

353 Plural acyclic nitrogens bonded directly to the same carbon or bonded directly to each other:
This subclass is indented under subclass 352. Subject matter wherein at least two acyclic nitrogens are bonded directly to the same carbon or single bonded directly to each other.

354 C=O bonded directly to the six-membered hetero ring:
This subclass is indented under subclass 277. Subject matter wherein a C=O group is bonded directly to the six-membered hetero ring.

355 At 3-position:
This subclass is indented under subclass 354. Subject matter wherein the C=O group is attached directly to the 3-position of the six-membered hetero ring e.g.,



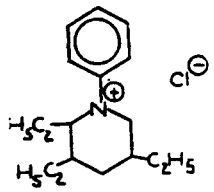
, etc.

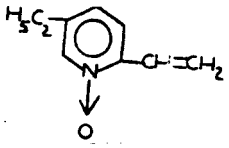
356 C=O in a C(=O)O group (e.g., nicotinic acid, etc.):
This subclass is indented under subclass 355. Subject matter wherein the C=O is part of aO group.

357 Nitrogen attached indirectly to the six-membered hetero ring by nonionic bonding:
This subclass is indented under subclass 277. Subject matter wherein nitrogen is attached indirectly to the six-membered hetero ring by nonionic bonding.

358 The ring nitrogen of the six-membered hetero ring is pentavalent (e.g., quaternary pyridinium salts, etc.):
This subclass is indented under subclass 277. Subject matter wherein the ring nitrogen of the six-membered ring is pentavalent.

(1) Note. Examples of compounds provided for herein are:





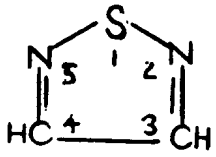
, etc.

359 Five-membered hetero ring containing at least one nitrogen ring atom (e.g., 1,2,3-triazoles, etc.):
This subclass is indented under subclass 183. Subject matter wherein the hetero ring is five-membered and contains at least one ring nitrogen, e.g., 1,2,3-triazoles, etc.

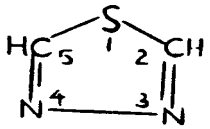
360 Plural ring chalcogens in the hetero ring:
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring contains at least two ring chalcogen atoms in addition to the ring nitrogen and ring carbon, etc., 1,2,4-dithiazoles, etc.

361 Plural ring nitrogens and a single chalcogen in the hetero ring:
This subclass is indented under subclass 359. Subject matter wherein the five-member hetero ring contains at least two ring nitrogens and only one ring chalcogen.

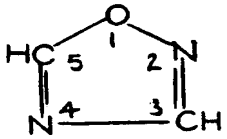
362 1,2,5-thiadiazoles (including hydrogenated):
This subclass is indented under subclass 361. Subject matter wherein the hetero ring is 1,2,5-thiadiazole having the following structure, as illustrated below, or hydrogenated form thereof.



363 1,3,4,-thiadiazoles (including hydrogenated):
This subclass is indented under subclass 361. Subject matter wherein the hetero ring is 1,3,4,-Thiadiazole having the following structure, as illustrated below, or hydrogenated form thereof.

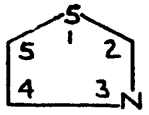


364 Oxadiazoles (including hydrogenated):
This subclass is indented under subclass 361. Subject matter wherein the hetero ring contains one ring oxygen and two ring nitrogens as the only hetero atoms of the ring and may have a double bond between ring members, e.g.,



, etc.

365 1,2-thiazoles (including hydrogenated):
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring is a 1,3-thiazole ring which includes the following basic ring structure, as illustrated below, and may contain a double bond between ring members.



(1) Note. See section II, Glossary, for the definition of "including hydrogenated".

366 Polycyclo ring system having the thiazole ring as one of the cyclos:
This subclass is indented under subclass 365. Subject matter wherein the 1,3-thiazole ring is a cyclo of a polycyclo ring system.

367 Bicyclo ring system having the thiazole ring as one of the cyclos:
This subclass is indented under subclass 366. Subject matter wherein the polycyclo ring system consists of exactly two rings.

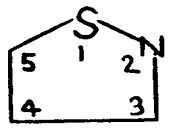
368 Ring nitrogen is shared by the cyclos of the bicyclo ring system (e.g., tetramisole, etc.):
This subclass is indented under subclass 367. Subject matter wherein the ring nitrogen is a member of both of the cyclos in the bicyclo ring system, e.g., tetramisole etc.

369 Chalcogen bonded directly to ring carbon of the thiazole ring:
This subclass is indented under subclass 365. Subject matter wherein chalcogen is bonded directly to ring carbon of the 1,3-thiazole ring.

370 Nitrogen bonded directly ring carbon of the thiazole ring:
This subclass is indented under subclass 365. Subject matter wherein nitrogen is bonded directly to ring carbon of the 1,3-thiazole ring.

371 C=X bonded directly to the nitrogen which is bonded directly to the thiazole ring (X is chalcogen):
This subclass is indented under subclass 370. Subject matter wherein the nitrogen is bonded additionally directly to a C=O or C=S group.

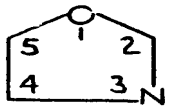
372 1,2-thiazoles (including hydrogenated):
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring is a 1,2-thiazole ring which includes the following basic ring structure, illustrated below, and may contain a double bond between ring members.



(1) Note. See section II, Glossary, for the definition of "including hydrogenated".

373 Polycyclo ring system having the thiazole ring as one of the cyclos:
This subclass is indented under subclass 372. Subject matter wherein the 1,2-thiazole ring is a cyclo of a polycyclo ring system.

374 1,3-oxazoles (including hydrogenated):
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring is a 1,3-oxazole ring which includes the following basic ring structure, illustrated below, and may contain a double bond between ring members.



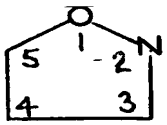
(1) Note. See section II, Glossary, for the definition "including hydrogenated".

375 Polycyclo ring system having the oxazole ring as one of the cyclos:
This subclass is indented under subclass 374. Subject matter wherein the 1,3-oxazole ring is a cyclo of a polycyclo ring system.

376 Chalcogen bonded directly to ring carbon of the oxazole ring:
This subclass is indented under subclass 374. Subject matter wherein chalcogen is bonded directly to ring carbon of the 1,3-oxazole ring.

377 Nitrogen bonded directly to ring carbon of the oxazole ring:
This subclass is indented under subclass 374. Subject matter wherein nitrogen is bonded directly to ring carbon of the 1,3-oxazole ring.

378 1,2-oxazoles (including hydrogenated):
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring is a 1,2-oxazole ring which includes the following basic ring structure, illustrated below, and may contain a double bond between ring members.



(1) Note. See section II, Glossary, for the definition "including hydrogenated".

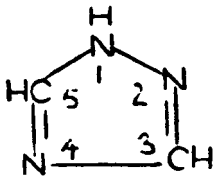
379 Polycyclo ring system having the oxazole ring as one of the cyclos:
This subclass is indented under subclass 378. Subject matter wherein the 1,2-oxazole ring is a cyclo of a polycyclo ring system.

380 Chalcogen or nitrogen bonded directly to ring carbon of the oxazole ring:
This subclass is indented under subclass 378. Subject matter wherein chalcogen or nitrogen is bonded directly to ring carbon of the 1,2-oxazole ring.

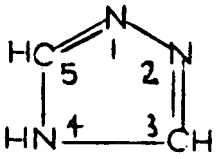
381 Tetrazoles (including hydrogenated):
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring consists of four ring nitrogens and one ring carbon and may have double bond between ring members.

382 Additional chalcogen containing hetero ring:
This subclass is indented under subclass 381. Subject matter which contains an additional chalcogen containing hetero ring.

383 1,2,4-triazoles (including hydrogenated):
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring is 1,2,4-triazole having the following structure, illustrated below, or hydrogenated form thereof.

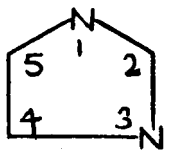


or



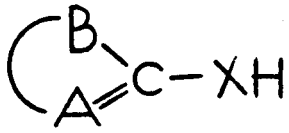
384 Chalcogen bonded directly to the triazole ring:
This subclass is indented under subclass 383. Subject matter wherein chalcogen is directly bonded to the 1,2,4-triazole.

385 1,3-diazoles:
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring is a 1,3-diazole ring which includes the following basic ring structure, illustrated below, and may contain a double bond between ring members.

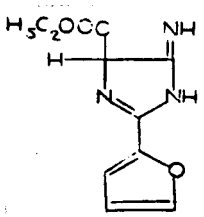


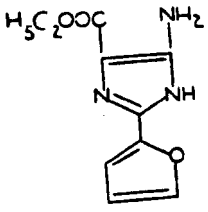
386 Divalent chalcogen or acyclic nitrogen double bonded directly to ring carbon of the diazole ring, or tautomeric equivalent:
This subclass is indented under subclass 385. Subject matter wherein a ring carbon of the 1,3-diazole ring is bonded directly by a double bond to divalent chalcogen or acyclic nitrogen, or to a group which may tautomerize thereto (e.g., hydroxyl, sulfhydryl, acyclic amino, etc.).

(1) Note. (A) all 1,3-diazoles having the following structure, as shown in the first illustration, are classified in this and indented subclasses; (B) the aminoimidazole, for example, as shown in the second illustration below, is included in this subclass though its imino tautomer, as shown in the third illustration below, may not be present in significant amounts; (C) salts in which the labile hydrogen of, for example, an hydroxy, sulfhydryl or amino tautomer is replaced with a metal or amine salt are classified here.



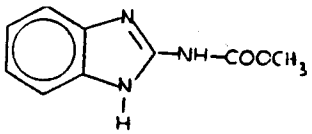
X is chalcogen or NR; A is N or CR'; B is the remaining ring members of the 1,3-diazole; R is H or a substituent; R' is H or a substituent

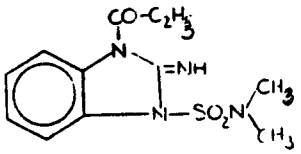




387 Polycyclo ring system having the diazole ring as one of the cyclos:
This subclass is indented under subclass 386. Subject matter wherein the 1,3-diazole ring is one of the cyclos of a polycyclo ring system.

388 Nitrogen double bonded directly at 2-position of the diazole ring, or tautomeric equivalent:
This subclass is indented under subclass 387. Subject matter wherein an acyclic nitrogen is double bonded directly to the ring carbon between two ring nitrogens of the 1,3-diazole ring, or the amino tautomeric equivalent, e.g.,





, etc.

389 Divalent chalcogen or acyclic nitrogen double bonded directly at both 2- and 4-positions, or tautomeric equivalent (e.g., hydantoin, etc.):
This subclass is indented under subclass 386. Subject matter wherein the ring carbons at the 2- and 4-positions of the 1,3-diazole ring are each bonded directly by a double bond to divalent chalcogen or acyclic nitrogen, or to a group which may tautomerize thereto (e.g., hydroxyl, sulfhydryl, acyclic amino, etc.).

390 Chalcogen or nitrogen bonded directly at 1-, 3-, or 5-position by nonionic bonding:
This subclass is indented under subclass 389. Subject matter wherein chalcogen or nitrogen is bonded directly to a ring nitrogen, or to the ring carbon at 5-position of the 1,3-diazole ring by nonionic bonding.

391 Benzene ring bonded directly to the diazole ring by nonionic bonding:
This subclass is indented under subclass 389. Subject matter wherein a benzene ring is bonded directly to 1,3-diazole ring by nonionic bonding.

392 Divalent chalcogen or acyclic nitrogen double bonded directly at 2-position, or tautomeric equivalent:
This subclass is indented under subclass 386. Subject matter wherein the ring carbon between the two ring nitrogens of the 1,3-diazole ring is bonded directly by a double bond to divalent chalcogen or acyclic nitrogen, or to a group which may tautomerize thereto (e.g., hydroxyl, sulfhydryl, acyclic amino, etc.).

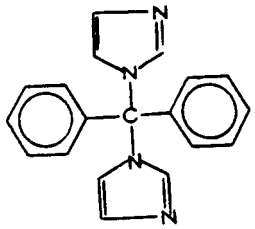
393 Polycyclo ring system having the diazole ring as one of the cyclos:
This subclass is indented under subclass 385. Subject matter wherein the 1,3-diazole ring is one of the cyclos of a polycyclo ring system.

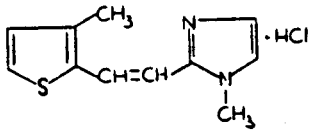
394 Benzo fused at 4,5-positions of the diazole ring:
This subclass is indented under subclass 393. Subject matter wherein the polyclo ring system contains a benzo ring which shares the carbons at 4- and 5-positions of the 1,3-diazole ring, e.g., benzimidazoles, etc.

395 Chalcogen or nitrogen bonded directly at 1-,2-, or 3-position of the diazole ring by nonionic bonding:
This subclass is indented under subclass 394. Subject matter wherein chalcogen or nitrogen is bonded directly to a ring nitrogen or 2-carbon of the benzo fused 1,3-diazole ring by nonionic bonding.

396 Imidazoles:
This subclass is indented under subclass 385. Subject matter wherein the 1,3-diazole ring is imidazole which contains two double bonds between the ring members.

397 Additional hetero ring:
This subclass is indented under subclass 396. Subject matter which contains an additional hetero ring, e.g.,





, etc.

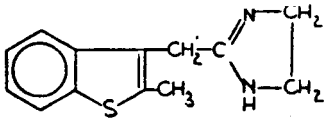
398 Chalcogen or nitrogen bonded directly to the imidazole ring by nonionic bonding:
This subclass is indented under subclass 396. Subject matter wherein chalcogen or nitrogen is bonded directly to the imidazole ring by nonionic bonding.

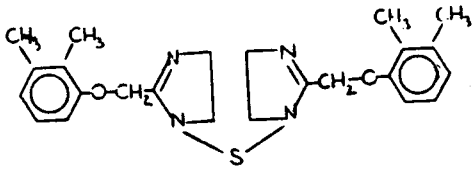
399 Chalcogen or nitrogen bonded indirectly to the imidazole ring by nonionic bonding:
This subclass is indented under subclass 396. Subject matter wherein chalcogen or nitrogen is bonded indirectly to the imidazole ring by nonionic bonding.

400 At imidazole ring carbon:
This subclass is indented under subclass 399. Subject matter wherein the chalcogen or nitrogen is bonded indirectly to a ring carbon of the imidazole ring and not through any of the hetero atoms.

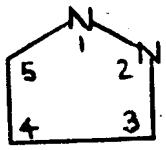
401 2-imidazolines:
This subclass is indented under subclass 385. Subject matter wherein the 1,3-diazole ring contains one double bond between 2-carbon and 3-nitrogen.

402 Additional hetero ring:
This subclass is indented under subclass 401. Subject matter which contains an additional hetero ring, e.g.,



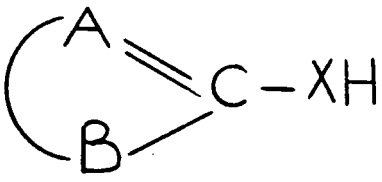


403 **1,2-diazoles:**
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring is a 1,2-diazole ring which includes the following basic ring structure, as illustrated below, and may contain a double bond between ring members.

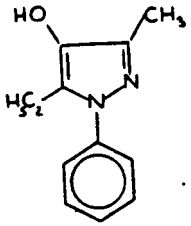


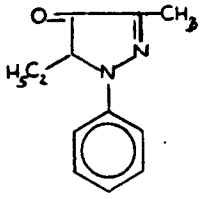
404 **Divalent chalcogen or acyclic nitrogen double bonded directly to ring carbon of the diazole ring, or tautomeric equivalent:**
This subclass is indented under subclass 403. Subject matter wherein a ring carbon of the 1,2-diazole ring is bonded directly by a double bond to divalent chalcogen or acyclic nitrogen, or to a group which may tautomerize thereto (e.g., hydroxyl, sulfhydryl, acyclic amino, etc.).

(1) Note. (A) all 1,2-diazoles having the following structure, shown in the first illustration, are classified in this and indented subclasses; (B) the hydroxy pyrazole, for example, as shown in the second illustration below, is included in this subclass though its oxo tautomer, as shown in the third illustration below, may not be present in significant amounts; (C) Salts in which the labile hydrogen of, for example, an hydroxy, sulfhydryl or amino tautomer is replaced with a metal ion or amine salt are classified here.



X is chalcogen or NR; A is N or CR'; B is the remaining ring members of the 1,2-diazole; R is H or a substituent; R' is H or a substituent





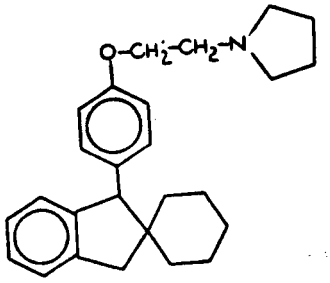
405 **Polycyclo ring system having the diazole ring as one of the cyclos:**
This subclass is indented under subclass 404. Subject matter wherein the 1,2-diazole ring is one of the cyclos of a polycyclo ring system.

406 **Pyrazoles:**
This subclass is indented under subclass 403. Subject matter wherein the 1,2-diazole ring is pyrazole which contains two double bonds between ring members.

407 Chalcogen or nitrogen bonded directly to the pyrazole ring by nonionic bonding:
This subclass is indented under subclass 406. Subject matter wherein chalcogen or nitrogen is bonded directly to the pyrazole ring by nonionic bonding.

408 The five-membered hetero ring consists of one nitrogen and four carbons:
This subclass is indented under subclass 359. Subject matter wherein the five-membered hetero ring consists of one nitrogen and four carbon atoms, e.g., pyrrolidine, etc.

409 Spiro ring system:
This subclass is indented under subclass 408. Subject matter which contains a spiro ring system, e.g.,

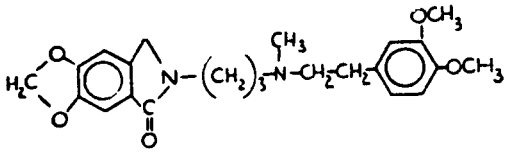


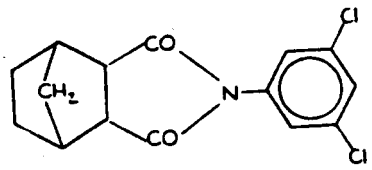
, etc.

(1) Note. See section II, Glossary, for the definition of "spiro ring system".

410 Polycyclo ring system having the five-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 408. Subject matter wherein the five-membered hetero ring is one of the cyclos of a polycyclo ring system.

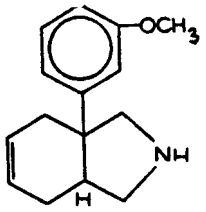
411 Tricyclo ring system having the five-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 410. Subject matter wherein the polycyclo ring system consists of exactly three cyclos, e.g.,





, etc.

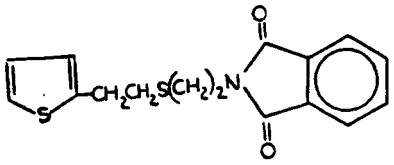
412 Bicyclo ring system having the five-membered hetero ring as one of the cyclos:
This subclass is indented under subclass 410. Subject matter wherein the polycyclo ring system consists of exactly two cyclos, e.g.,



, etc.

413 Ring nitrogen is shared by the cyclos of the bicyclo ring system:
This subclass is indented under subclass 412. Subject matter wherein the ring nitrogen of the five-membered hetero ring is additionally a ring member of the other cyclo of the bicyclo ring system, e.g.,

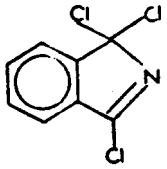
414 Additional hetero ring which is not part of the bicyclo ring system:
This subclass is indented under subclass 412. Subject matter which contains an additional hetero ring, e.g.,

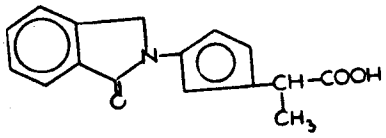


, etc.

415 **The bicyclo ring system consists of the five-membered hetero ring and a benzene ring (e.g., indole, etc.):**
This subclass is indented under subclass 412. Subject matter wherein the five-membered hetero ring and a benzene ring are the cyclos of the bicyclo ring system, e.g., indole, indoline, etc.

416 **The ring nitrogen is bonded directly to nonshared ring carbons of the five-membered hetero ring (e.g., isoindole, etc.):**
This subclass is indented under subclass 415. Subject matter wherein the ring nitrogen is bonded directly to the two nonshared ring carbons of the five-membered hetero ring, e.g.,



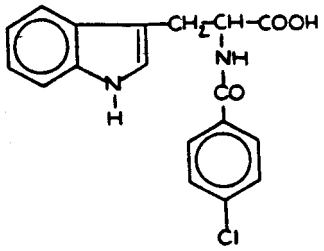


, etc.

417 **Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring (e.g., phthalimide, etc.):**
This subclass is indented under subclass 416. Subject matter wherein at least two chalcogens are bonded directly to ring carbons of the five-membered hetero ring, e.g., phthalimide, etc.

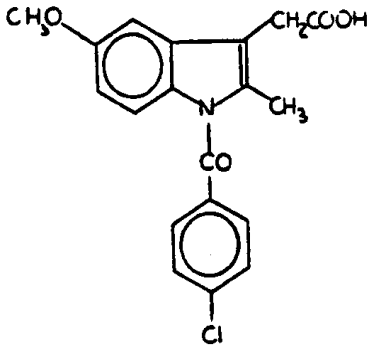
418 **Chalcogen bonded directly to ring carbon of the five-membered hetero ring:**
This subclass is indented under subclass 415. Subject matter wherein chalcogen is bonded directly to ring carbon of the five-membered.

419 **C=X bonded directly or indirectly by an acyclic carbon or carbon chain to ring carbon of the five-membered hetero ring (e.g., trytophan, etc.) (X is chalcogen):**
This subclass is indented under subclass 415. Subject matter wherein a C=X group (X is Chalcogen) is bonded directly or indirectly to a ring carbon of the five-membered hetero ring by an acyclic carbon or carbon chain, e.g.,



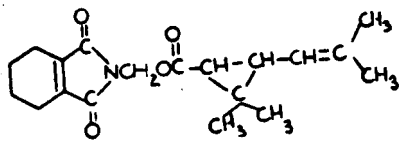
, etc.

420 **Indomethacin, per se, or ester thereof:**
This subclass is indented under subclass 419. Subject matter wherein the compound is indomethacin, i.e., as illustrated below, or ester of the carboxyl group thereof.



421 Chalcogen bonded directly to ring carbon of the five-membered hetero ring (e.g., adrenochrome, etc.):

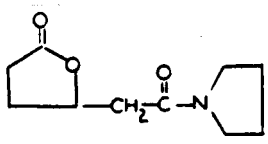
This subclass is indented under subclass 412. Subject matter wherein chalcogen is bonded directly to ring carbon of the five-membered hetero ring, e.g.,

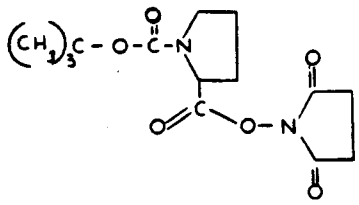


, etc.

422 Additional hetero ring:

This subclass is indented under subclass 408. Subject matter which contains an additional hetero ring, e.g.,





, etc.

423 C=X bonded directly to the five-membered hetero ring by nonionic bonding (X is chalcogen):

This subclass is indented under subclass 408. Subject matter wherein C=X (X is chalcogen) is bonded directly to the five-membered hetero ring by nonionic bonding.

424 Chalcogen bonded directly to the five-membered hetero ring by nonionic bonding:

This subclass is indented under subclass 408. Subject matter wherein chalcogen is bonded directly to the five-membered hetero ring by nonionic bonding.

425 Plural chalcogens bonded directly to the five-membered hetero ring by nonionic bonding:

This subclass is indented under subclass 424. Subject matter wherein at least two chalcogens are bonded directly to the five-membered hetero ring by nonionic bonding.

426 Nitrogen bonded directly to the five-membered hetero ring by nonionic bonding:

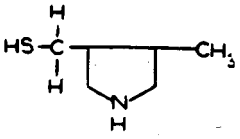
This subclass is indented under subclass 408. Subject matter wherein nitrogen is bonded directly to the five-membered hetero ring by nonionic bonding.

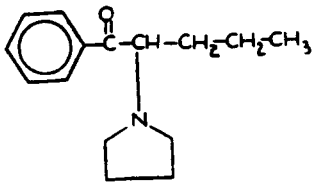
427 Two double bonds between ring members of the five-membered hetero ring (e.g., pyrrole, etc.):

This subclass is indented under subclass 408. Subject matter which contains two double bonds between ring members of the five-membered hetero ring, e.g., pyrrole, etc.

428 Chalcogen bonded indirectly to the five-membered hetero ring by acyclic nonionic bonding:

This subclass is indented under subclass 408. Subject matter wherein chalcogen is bonded indirectly to the five-membered hetero ring by acyclic nonionic bonding, e.g.,





, etc.

429 **Carbocyclic ring bonded directly to the five-membered hetero ring:**
This subclass is indented under subclass 408. Subject matter wherein a carbocyclic ring is bonded directly to the five-membered hetero ring.

430 **Sulfur containing hetero ring:**
This subclass is indented under subclass 183. Subject matter wherein the hetero ring has sulfur as a ring hetero atom.

(1) Note. Inner sulfonium salts, even when represented in cyclic form are excluded herefrom.

431 **The hetero ring has at least seven members:**
This subclass is indented under subclass 430. Subject matter wherein the hetero ring has at least seven members.

432 **The hetero ring is six-membered:**
This subclass is indented under subclass 430. Subject matter wherein the hetero ring is six-membered.

433 **Plural hetero atoms in the hetero ring:**
This subclass is indented under subclass 432. Subject matter wherein the hetero ring contains at least one ring hetero atom in addition to the ring sulfur.

434 **Polycyclo ring system having the hetero ring as one of the cyclos:**
This subclass is indented under subclass 433. Subject matter wherein the hetero ring is one of the cyclos of a polycyclo ring system.

435 **Three or more ring hetero atoms in the hetero ring:**
This subclass is indented under subclass 433. Subject matter wherein the six-membered hetero ring contains at least two ring hetero atoms in addition to the ring sulfur.

436 **Two ring sulfurs in the hetero ring:**
This subclass is indented under subclass 433. Subject matter wherein the six-membered hetero ring contains at least two ring hetero atoms in addition to the ring sulfur.

437 **Tricyclo ring system having the hetero ring as one of the cyclos:**
This subclass is indented under subclass 432. Subject matter wherein the hetero ring is one of the cyclos of a polycyclo ring system consisting of exactly three cyclos.

438 **The hetero ring is five-membered:**
This subclass is indented under subclass 430. Subject matter wherein the hetero ring is five-membered.

439 **Plural hetero atoms in the hetero ring:**
This subclass is indented under subclass 438. Subject matter wherein the hetero ring has at least one ring hetero atom in addition to the ring sulfur.

440 **Only two ring sulfurs in the hetero ring:**
This subclass is indented under subclass 439. Subject matter wherein the hetero ring contains exactly two ring sulfurs as the only hetero atoms present.

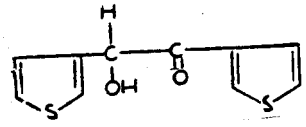
441 **Chalcogen bonded directly to ring carbon of the hetero ring:**
This subclass is indented under subclass 440. Subject matter wherein chalcogen is bonded directly to ring carbon of the hetero ring.

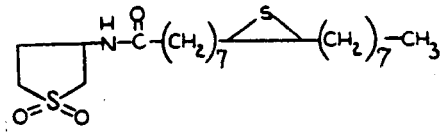
442 **Nitrogen bonded directly to the hetero ring by nonionic bonding:**
This subclass is indented under subclass 440. Subject matter wherein nitrogen is bonded directly to the hetero ring by nonionic bonding.

443 Polycyclo ring system having the hetero ring as one of the cyclos:
This subclass is indented under subclass 438. Subject matter wherein the five-membered sulfur containing hetero ring is one of the cyclos of a polycyclo ring system.

444 Additional hetero ring:
This subclass is indented under subclass 438. Subject matter wherein an additional hetero ring is present.

(1) Note. Examples of compounds Provided for herein are:





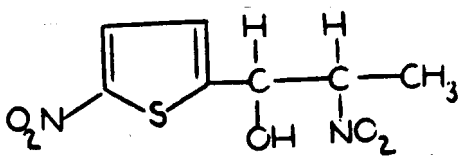
, etc.

445 Chalcogen bonded directly to ring carbon of the hetero ring:
This subclass is indented under subclass 438. Subject matter wherein chalcogen is bonded directly to ring carbon of the hetero ring.

446 Chalcogen bonded directly to ring sulfur by nonionic bonding:
This subclass is indented under subclass 438. Subject matter wherein chalcogen is bonded directly to ring sulfur of the hetero ring.

447 Nitrogen bonded directly to the hetero ring:
This subclass is indented under subclass 438. Subject matter wherein nitrogen is bonded directly to the hetero ring.

(1) Note. An example of a compound within this definition:



448 C=X bonded directly to the hetero ring (X is chalcogen):
This subclass is indented under subclass 438. Subject matter wherein C=X (X is chalcogen) is bonded directly to the hetero ring.

449 Oxygen containing hetero ring:
This subclass is indented under subclass 183. Subject matter wherein the hetero ring contains a ring oxygen.

450 The hetero ring has at least seven members:
This subclass is indented under subclass 449. Subject matter wherein the hetero ring has seven or more members.

451 The hetero ring is six-membered:
This subclass is indented under subclass 449. Subject matter wherein the hetero ring is six-membered.

452 Plural ring oxygens in the hetero ring:
This subclass is indented under subclass 451. Subject matter wherein the six-membered hetero ring contains at least two ring oxygens.

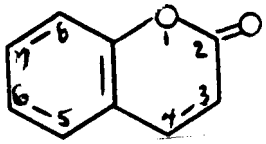
453 Polycyclo ring system having the hetero ring as one of the cyclos:
This subclass is indented under subclass 451. Subject matter wherein the six-membered hetero ring is one of the cyclos of a polycyclo ring system.

454 Tricyclo ring system having the hetero ring as one of the cyclos:
This subclass is indented under subclass 453. Subject matter wherein the polycyclo ring system consists of exactly three cyclos.

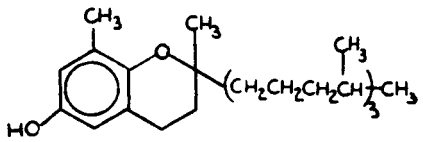
455 Chalcogen bonded directly to ring carbon of the hetero ring:
This subclass is indented under subclass 454. Subject matter wherein chalcogen is bonded directly to ring carbon of the hetero ring.

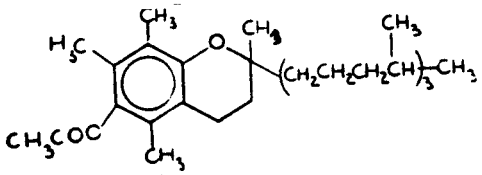
456 **Bicyclo ring system having the hetero ring as one of the cyclos (e.g., chromones, etc.):**
This subclass is indented under subclass 453. Subject matter wherein the polycyclo ring system consists of exactly two cyclos.

457 **Coumarins (including hydrogenated):**
This subclass is indented under subclass 456. Subject matter wherein the bicyclo ring system has the following structure, as illustrated below, or hydrogenated form thereof.



458 **Tocopherols (e.g., vitamin E, etc.):**
This subclass is indented under subclass 456. Subject matter wherein the bicyclo ring system includes the following structure, in the first illustration below, or ether, ester of the hydroxyl group thereof, e.g., as shown in the second illustration below.





, etc.

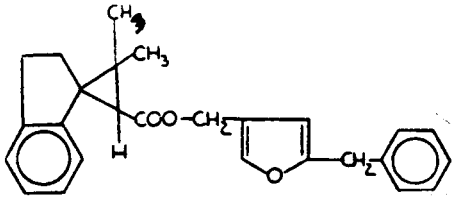
(1) Note. The several tocopherols differ by methyl substitution on the benzo ring.

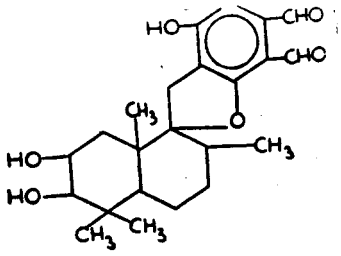
459 **Nitrogen containing:**
This subclass is indented under subclass 451. Subject matter which contains nitrogen.

460 **Chalcogen bonded directly to ring carbon of the hetero ring:**
This subclass is indented under subclass 451. Subject matter wherein chalcogen is bonded directly to ring carbon of the hetero ring.

461 **The hetero ring is five-membered:**
This subclass is indented under subclass 449. Subject matter wherein the hetero ring is five-membered.

462 **Spiro ring system:**
This subclass is indented under subclass 461. Subject matter which contains a spiro ring system, e.g.,



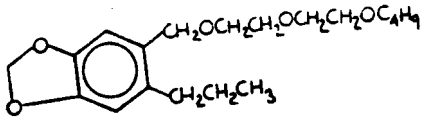


, etc.

(1) Note. See section IV, Glossary, for the definition of "spiro ring system."

463 **Plural ring oxygens in the hetero ring:**
This subclass is indented under subclass 461. Subject matter wherein the five-membered hetero ring contains at least two ring oxygens.

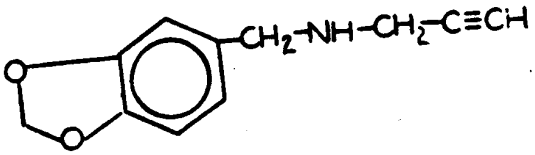
464 **Bicyclo ring system having the hetero ring as one of the cyclos (e.g., methylenedioxyphenyl group, etc.):**
This subclass is indented under subclass 463. Subject matter wherein the hetero ring is one of the cyclos of a bicyclo ring system, e.g.,



, etc.

465 **The hetero ring is substituted:**
This subclass is indented under subclass 464. Subject matter wherein the hetero ring contains substituents other than hydrogen.

466 **Nitrogen containing:**
This subclass is indented under subclass 464. Subject matter which contains nitrogen, e.g.,



, etc.

467 **Only two ring oxygens in the hetero ring which is not a polycyclo ring system (e.g., dioxolane, etc.):**
This subclass is indented under subclass 463. Subject matter wherein the hetero ring contains only two oxygens as ring hetero atoms and is not a cyclo of a polycyclo ring system.

468 **Polycyclo ring system having the hetero ring as one of the cyclos:**
This subclass is indented under subclass 461. Subject matter wherein the five-membered hetero ring is one of the cyclos of a polycyclo ring system.

469 **Bicyclo ring system having the hetero ring as one of the cyclos:**
This subclass is indented under subclass 468. Subject matter wherein the polycyclo ring system consists of exactly two cyclos.

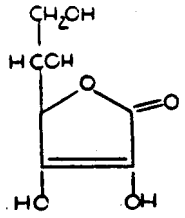
470 **Chalcogen or nitrogen bonded directly to the hetero ring:**
This subclass is indented under subclass 469. Subject matter wherein chalcogen or nitrogen is bonded directly to the hetero ring.

471 **Nitrogen containing:**
This subclass is indented under subclass 461. Subject matter which contains nitrogen.

472 **The nitrogen bonded directly to the hetero ring:**
This subclass is indented under subclass 471. Subject matter wherein the nitrogen is bonded directly to the hetero ring.

473 **Chalcogen bonded directly to the hetero ring:**
This subclass is indented under subclass 461. Subject matter wherein chalcogen is bonded directly to the hetero ring.

474 **Ascorbic acid or derivative (e.g., vitamin c, etc.):**
This subclass is indented under subclass 473. Subject matter which has the following structure, as illustrated below, or derivative thereof.



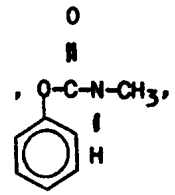
(1) Note. A derivative of ascorbic acid includes the replacement of hydroxyl hydrogen with acyl, alkyl or metal to give the ester, ether or alcoholate of a metal.

475 **The hetero ring is three-membered:**
This subclass is indented under subclass 449. Subject matter wherein the oxygen containing hetero ring is three-membered.

476 **N-C (=X) X containing (X is chalcogen) DOAI:**
This subclass is indented under subclass 1. Subject matter wherein the DOAI contains the grouping NX wherein X is chalcogen, e.g., H_2NOH etc.

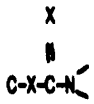
477 **N-C (=X)-X-N containing:**
This subclass is indented under subclass 476. Subject matter wherein the active ingredient contains the grouping NXN wherein X is chalcogen, e.g., R_2-NS-NH_2, etc.

478 **N-C (=X)-X-C containing:**
This subclass is indented under subclass 476. Subject matter in which the active ingredient is an ester of carbamic acid, i.e., H-XN (X is chalcogen) and which contains the NX-C group, e.g.,



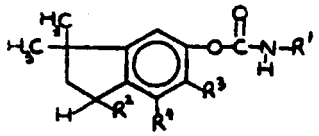
, etc.

479 **With an additional active ingredient:**
This subclass is indented under subclass 478. Subject matter which contains a compound having the grouping, as shown below, and an additional organic active ingredient.



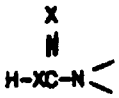
(1) Note. Synergistic and potentiating agents are considered active ingredients.

480 **Polycyclo ring system attached by nonionic bonding:**
This subclass is indented under subclass 478. Subject matter wherein the compound contains a polycyclo ring system, e.g.,

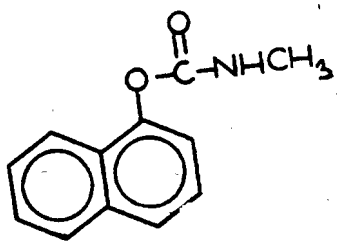


, etc.

(1) Note. Compounds wherein the polycyclo system is ionically bonded to the moiety containing the grouping, as shown below, are excluded from this subclass.



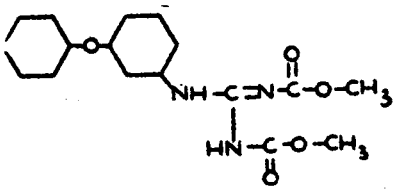
481 **Naphthyl ring system:**
This subclass is indented under subclass 480. Subject matter wherein the compound contains a naphthyl ring system, e.g.,

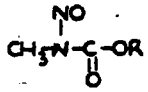


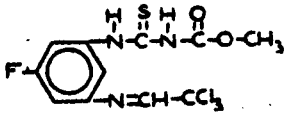
, etc.

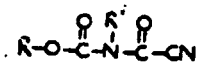
482 **N-C(=X)-N, N-C (=N)N, N-N, nitrogen directly bonded to oxygen by nonionic bonding or cyano containing:**
This subclass is indented under subclass 478. Subject matter which contains the grouping NN (e.g., ureido);NN, (e.g., guanido); N-N (e.g., hydrazo, etc.), cyano or a nitrogen bonded directly to oxygen by nonionic bonding.

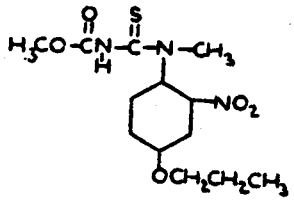
(1) Note. This subclass contains, for example,





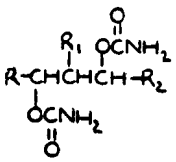






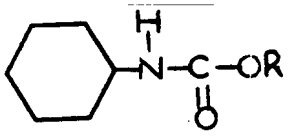
, etc.

483 **Plural N-C(=X)-X groups:**
This subclass is indented under subclass 478. Subject matter wherein the organic ingredient contains plural NX groups, e.g.,



, etc.

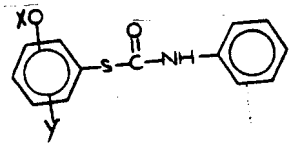
484 **Ring in acid moiety:**
This subclass is indented under subclass 478. Subject matter wherein the organic active ingredient has a ring in the acid moiety, e.g.,



, etc.

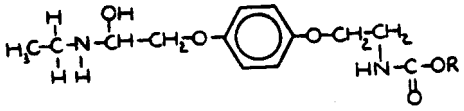
485 **The ring is a benzene ring:**
This subclass is indented under subclass 484. Subject matter wherein the ring is a benzene ring.

(1) Note. This subclass contains, e.g.,



, etc.

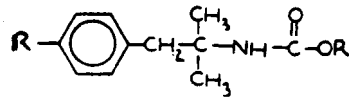
486 **Phenoxy in acid moiety:**
This subclass is indented under subclass 485. Subject matter wherein the benzene ring is a part of a phenoxy group, e.g.,



, etc.

487 **The benzene ring attached to nitrogen through an acyclic carbon or carbon chain:**
This subclass is indented under subclass 485. Subject matter wherein the benzene ring is attached to the nitrogen of the NXC group through an acyclic carbon or carbon chain.

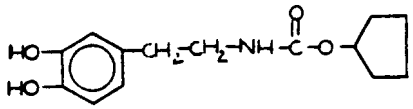
(1) Note. This subclass contains, e.g.,



, etc.

488 Ring in alcohol moiety:
This subclass is indented under subclass 485. Subject matter wherein the organic active ingredient also contains a ring in the alcohol moiety.

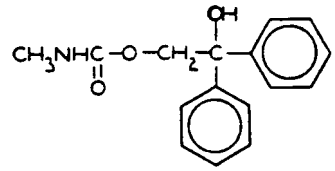
(1) Note. This subclass contains, e.g.,



, etc.

489 Ring in alcohol moiety:
This subclass is indented under subclass 478. Subject matter wherein the active ingredient contains a ring in the alcohol moiety.

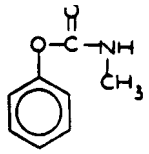
(1) Note. This subclass contains, e.g.,



, etc.

490 Ring attached directly to oxygen of N-C(=O)-O:
This subclass is indented under subclass 489. Subject matter wherein the ring is directly attached to the oxygen of the NO.

(1) Note. This subclass contains, e.g.,



, etc.

491 With an additional active ingredient:
This subclass is indented under subclass 476. Subject matter which contains a compound having the grouping NX and an additional organic active ingredient.

(1) Note. Synergistic and potentiating agents are considered active ingredients.

492 Heavy metal containing DOAI:
This subclass is indented under subclass 1. Subject matter in which the DOAI contains a heavy metal, i.e., a metal whose specific gravity is greater than 4.

(1) Note. Many patents in this and indented subclasses are drawn to compositions containing heavy metal salts of organic compounds.

493 Tin:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is tin.

494 Zinc:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is zinc.

495 Gold or silver:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is gold or silver.

496 Mercury:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is mercury.

497 Nitrogen containing:
This subclass is indented under subclass 496. Subject matter in which the heavy metal containing compound also contains a nitrogen atom.

498 Lead:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is lead.

499 Copper:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is copper.

500 With an additional active ingredient:
This subclass is indented under subclass 499. Subject matter which contains a compound which contains copper and also an additional active ingredient.

(1) Note. Synergistic and potentiating agents are considered active ingredients.

501 Nickel or cobalt:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is nickel or cobalt.

502 Iron:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is iron.

503 Antimony or bismuth:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is antimony or bismuth.

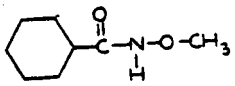
504 Arsenic:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is arsenic.

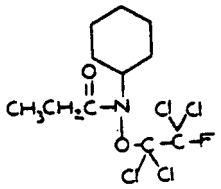
505 Cadmium or chromium:
This subclass is indented under subclass 492. Subject matter in which the heavy metal is cadmium or chromium.

506 Ester DOAI:
This subclass is indented under subclass 1. Subject matter wherein the DOAI is identical in structure with a compound formed by replacing the hydroxyl of an alcohol or phenol by an acid radical.

507 R-C(=X)-N-X-C containing (e.g., hydroxamic acid ester, etc.) (R is C or H and X is chalcogen):
This subclass is indented under subclass 506. Subject matter in which the ester contains the following group: RNXC, wherein R is carbon or hydrogen and X is chalcogen (e.g., hydroxamic acid ester, etc.).

(1) Note. This subclass contains for example:

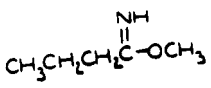


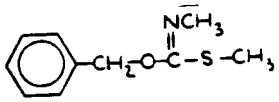


, etc.

508 X-C=N containing (e.g., imidoester, etc.) (X is chalcogen):
This subclass is indented under subclass 506. Subject matter in which the ester contains the following group: X-C=N wherein X is chalcogen (e.g., imidoester, etc.).

(1) Note. This subclass contains for example:

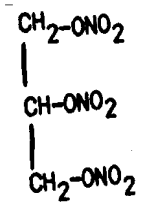




, etc.

509 (O=)N(=O)-O-C containing (e.g., nitrate ester, etc.):
This subclass is indented under subclass 506. Subject matter wherein the ester contains the group (O=)N(=O)-O-C.

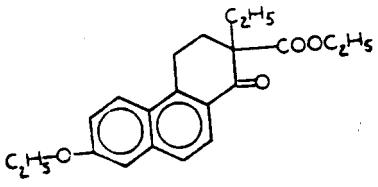
(1) Note. This subclass contains for example:



, etc.

510 Polycyclo ring system:
This subclass is indented under subclass 506. Subject matter wherein the ester contains a polycyclo ring system in either the alcohol or acid portion of the molecule.

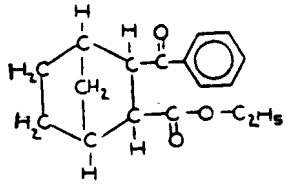
(1) Note. This subclass contains, for example:



, etc.

511 Two of the cyclos share at least three ring members (i.e., bridged):
This subclass is indented under subclass 510. Subject matter wherein the ester contains at least one bridged ring system in either the alcohol or acid portion of the molecule.

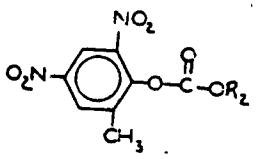
(1) Note. This subclass contains, for example:

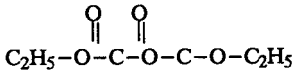


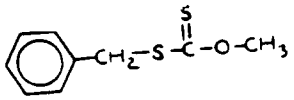
, etc.

512 X-C(=X)-X containing (e.g., carbonic acid ester, thiocarbonic acid ester, etc.) (X is chalcogen):
This subclass is indented under subclass 506. Subject matter wherein the ester contains the group XX, wherein X is chalcogen.

(1) Note. This subclass contains, for example:



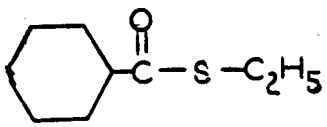




, etc.

513 C-C(=X)-X-C containing (X is chalcogen and at least one X is other than oxygen):
This subclass is indented under subclass 506. Subject matter wherein the ester contains the group group CXC wherein X is chalcogen and at least one is other than oxygen.

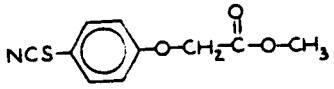
(1) Note. This subclass contains, for example:

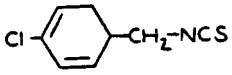


, etc.

514 Carbon bonded to -NCX (e.g., cyanate, thiocyanate or isothiocyanate, etc.) (X is chalcogen):
This subclass is indented under subclass 506. Subject matter wherein the organic action ingredient contains a carbon which is directly bonded to -NCX or -XCN.

(1) Note. This subclass contains, for example:





, etc.

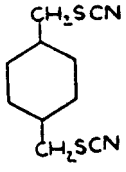
515 With an additional active ingredient:
This subclass is indented under subclass 514. Subject matter wherein the organic active ingredient contains a compound having the group -CNX or -XCN and an additional organic active ingredient.

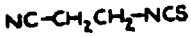
(1) Note. Synergistic and potentiating agents are considered active ingredients.

(2) Note. The starting solid polymer may be subjected to a number of aftertreating steps the sequence or numbers of which will not affect classification. The important criteria is that every reaction be considered proceeding from the starting solid polymer to the final product. This is consistent with the classification rules set out in the Class 520 Series.

516 Containing plural -NCX or -XCN groups or a cyano:
This subclass is indented under subclass 514. Subject matter in which the organic active ingredient contains plural -NCX or -XCN groups or a separate cyano group which is not a part of the -NCX or -XCN group.

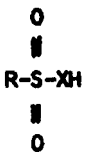
(1) Note. This subclass contains, for example:

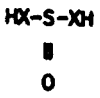




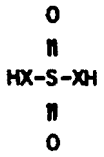
, etc.

517 S-X-C containing (e.g., sulfates, etc.) (S is chalcogen):
This subclass is indented under subclass 506. Subject matter wherein the ester is derived from a sulfur oxygen acid function of the formula RSOH, RXH, plus see the illustrations below:

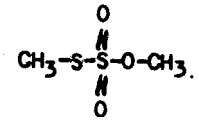


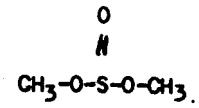


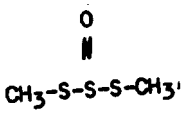
or



(1) Note. This subclass contains, for example:





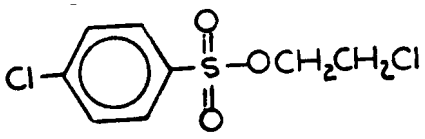


, etc.

518 S of S-X-C attached directly to a benzene ring:

This subclass is indented under subclass 517. Subject matter wherein the sulfur atom of the S-X-C is directly attached to a benzene ring.

(1) Note. This subclass contains for example:

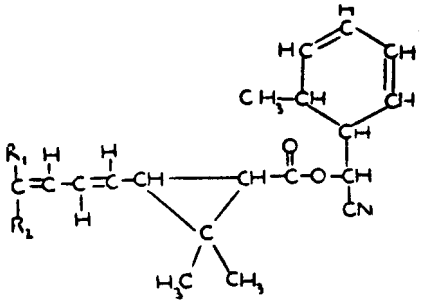


, etc.

519 Cyano or isocyano bonded directly to carbon:

This subclass is indented under subclass 506. Subject matter wherein the ester is the -C b N (cyano) or the -$^{+}$ b C (isocyano also written as -N = C group) attached to a carbon.

(1) Note. This subclass contains, for example:

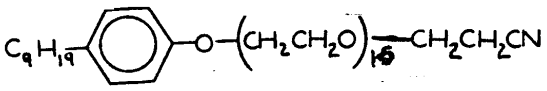


, etc.

520 Benzene ring containing:

This subclass is indented under subclass 303. Subject matter in which the cyano or isocyano containing compound also contains a benzene ring.

(1) Note. This subclass contains, for example:

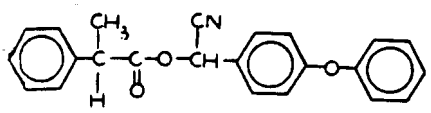


, etc.

521 C=O other than as ketone or aldehyde:

This subclass is indented under subclass 520. Subject matter in which the cyano or isocyano and benzene ring containing compound also contains a C=D (carbonyl) other than as a ketone or aldehyde.

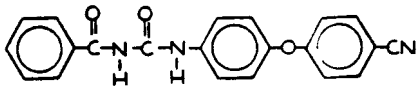
(1) Note. This subclass contains, for examples:



, etc.

522 **The cyano is bonded directly to a benzene ring:**
This subclass is indented under subclass 521. Subject matter wherein the cyano group is bonded directly to a benzene ring.

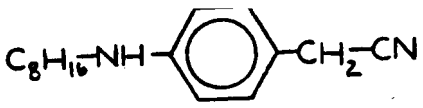
(1) Note. This subclass contains, for example:



, etc.

523 **Additional nitrogen other than cyano:**
This subclass is indented under subclass 520. Subject matter wherein the cyano and benzene containing compound also contains an additional nitrogen other than as in a cyano or isocyano grouping.

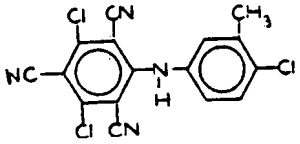
(1) Note. This subclass contains, for example:



, etc.

524 **The cyano is bonded directly to a benzene ring:**
This subclass is indented under subclass 523. Subject matter wherein a cyano group is bonded directly to a benzene ring.

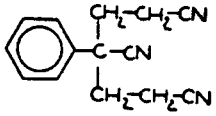
(1) Note. This subclass contains, for example:



, etc.

525 **Two or more of the cyano groups:**
This subclass is indented under subclass 520. Subject matter wherein the compound contains a benzene ring and at least two cyano groups.

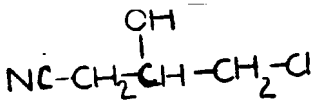
(1) Note. This subclass contains, for example:



, etc.

526 **Acyclic:**
This subclass is indented under subclass 519. Subject matter wherein the cyano containing compound is acyclic.

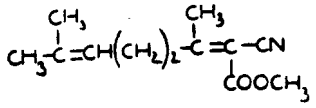
(1) Note. This subclass contains, for example:



, etc.

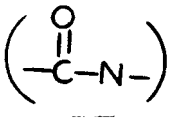
527 **C=O other than as ketone or aldehyde:**
This subclass is indented under subclass 526. Subject matter wherein the acyclic cyano containing compound contains a C=O (carbonyl) other than as ketone or aldehyde.

(1) Note. This subclass contains, for example:

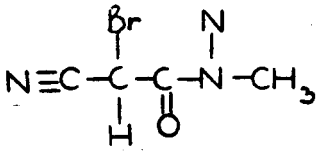


, etc.

528 **C(=O)N containing:**
This subclass is indented under subclass 527. Subject matter wherein the carbonyl group is present in the form of a carboxamide grouping,



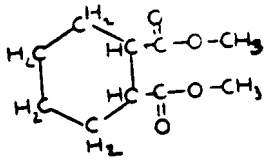
(1) Note. This subclass contains, for example:



, etc.

529 **Z-C(=O)-O-Y wherein Z is hydrogen or an organic radical bonded to the C(=O) by a carbon and Y is an organic radical bonded to the oxygen by a carbon:**
This subclass is indented under subclass 506. Subject matter wherein the ester is derived from a carboxylic acid of the formula ZO-Y wherein the Z and Y are organic radicals directly bonded by carbon atoms or Z is a hydrogen atom.

(1) Note. This subclass contains, for example:

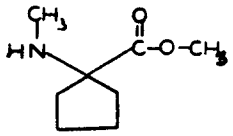


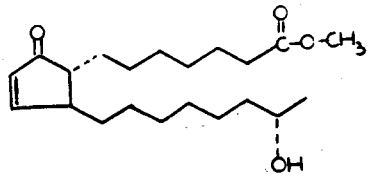
, etc.

(2) Note. A compound which contains plural radicals, is proper for the subclass hereunder if the Z (or Y) of any one of the radicals meets the requirements for Z (or Y) in the subclass.

530 **Z contains a cyclopentyl or cyclopentene ring:**
This subclass is indented under subclass 529. Subject matter wherein the Z is or contains a cyclopentyl or cyclopentene moiety.

(1) Note. This subclass contains, for example:

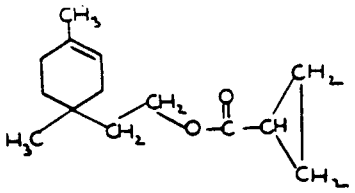


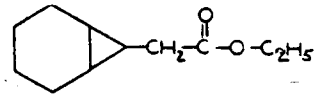


, etc.

531 **Z contains a cyclopropyl or cyclopropene ring:**
This subclass is indented under subclass 529. Subject matter wherein Z is or contains a cyclopropyl or cyclopropene moiety.

(1) Note. This subclass contains for example:





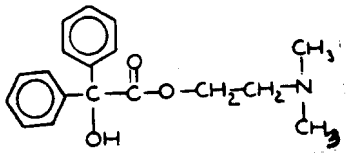
, etc.

(2) Note. A Compound which contains plural ZO-Y radicals is proper for the subclasses hereunder if the A (or Y) of any of the radicals meets the requirements for Z (or Y) in the subclass.

532 Z-C(=O)-O-Y, wherein Z contains a benzene ring:

This subclass is indented under subclass 529. Subject matter wherein Z is or contains a benzene ring.

(1) Note. This subclass contains, for example:

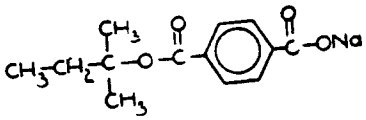


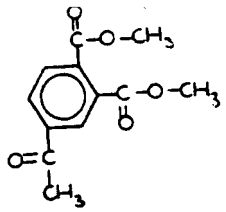
, etc.

533 Compound contains two or more C(=O)O groups indirectly bonded together by only covalent bonds:

This subclass is indented under subclass 532. Subject matter wherein the ester contains two of more O- groups.

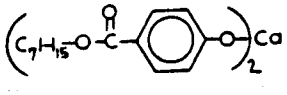
(1) Note. This subclass contains, for example:





, etc.

(2) Note. Exclude if formed because of ionic bonding, e.g.,

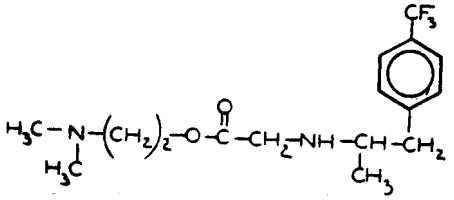


, etc.

534 Z or Y radical contains a nitrogen atom:

This subclass is indented under subclass 532. Subject matter wherein the Z or Y radical contains a nitrogen atom.

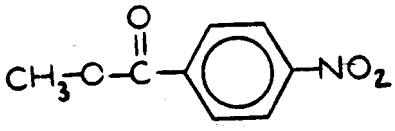
(1) Note. The subclass contains, for example:



, etc.

535 The nitrogen of the Z radical is directly bonded to a benzene ring which is directly bonded to the C(=O) group:
This subclass is indented under subclass 534. Subject matter wherein the nitrogen of the Z radical is directly attached to a benzene ring which is directly attached to the C=O of the C(=O) -OY grouping.

(1) Note. This subclass contains, for example:



, etc.

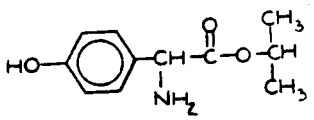
536 With an agent to enhance topical adsorption or with a stabilizing agent:
This subclass is indented under subclass 535. Subject matter wherein the composition includes an agent which acts as a stabilizer for the active ingredient therein or acts to enhance the topical absorption thereof.

(1) Note. To be included herein the agent must be disclosed to have one of said functions.

537 With an additional active ingredient:
This subclass is indented under subclass 535. Subject matter wherein an additional active ingredient is present along with the DOAI.

538 Nitrogen bonded to carbon in Z moiety:
This subclass is indented under subclass 534. Subject matter wherein the nitrogen is bonded to a carbon in the Z radical.

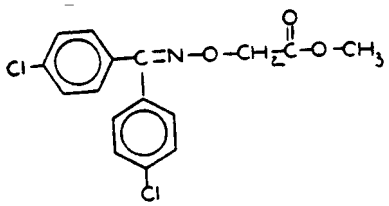
(1) Note. This subclass contains, for example:



, etc.

539 Plural separated benzene rings in Z moiety:
This subclass is indented under subclass 538. Subject matter wherein the active ingredient contains two or more separate benzene rings in the Z radical.

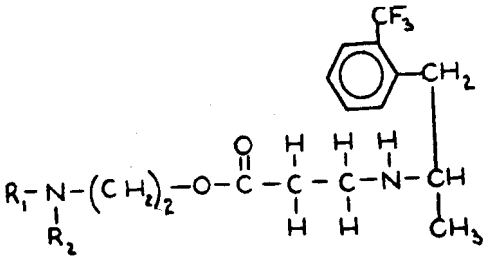
(1) Note. This subclass contains, for example:



, etc.

540 Nitrogen in Y moiety:
This subclass is indented under subclass 538. Subject matter wherein at least one nitrogen atom is also present in the Y radical.

(1) Note. This subclass contains, for example:



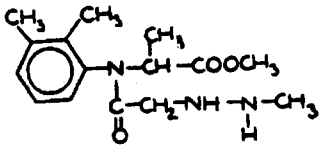
, etc.

541 Aldehyde or ketone in Z or Y radical:
This subclass is indented under subclass 538. Subject matter wherein the active ingredient contains a ketone or aldehyde grouping in the Z or Y radical.

542 Z radical contains two or more nitrogen atoms at least one of which forms a C(=X)N group (X is chalcogen):
This subclass is indented under subclass 538. Subject matter wherein the Z radical contains two or more nitrogen atoms, at least one of

which is present in the form a C(=X)-N group, wherein X is chalcogen.

(1) Note. This subclass contains, for example:

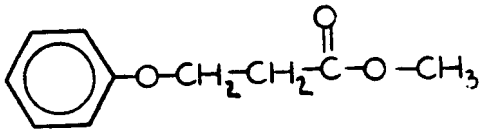


, etc.

, etc.

543 Z forms a phenoxyl alky or phenoxy alkenyl radical:
This subclass is indented under subclass 532. Subject matter wherein Z is a substituted or unsubstituted Phenoxy alkyl or phenoxy alkenyl radical.

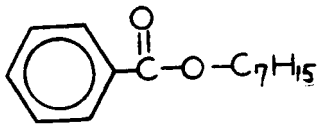
(1) Note. This subclass contains, for example, as illustrated below, wherein an oxyalkyl or oxyalkenyl group is between the phenyl and carbonyl of the ester function.



, etc.

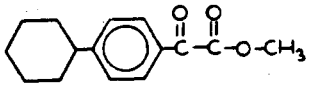
544 C(=O) attached directly through the carbon to a benzene ring:
This subclass is indented under subclass 532. Subject matter wherein the benzene ring is attached directly to the carbon of the C(=O)-OY.

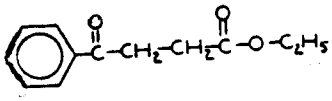
(1) Note. This subclass contains, for example:



545 Ketone in Z radical:
This subclass is indented under subclass 532. Subject matter wherein a ketone grouping is present in the Z moiety.

(1) Note. This subclass contains, for example:





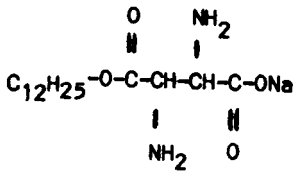
, etc.

546 ZC(=O)OY, wherein Z is an acyclic radical bonded to the C=O by a carbon and Y is an organic radical bonded to the oxygen by a carbon:
This subclass is indented under subclass 529. Subject matter wherein Z is an acyclic directly bonded to the C+O by a carbon and Y is an organic radical directly bonded to the oxygen by a carbon.

(1) Note. This subclass contains, for example: $CH_3O\text{-}CH_2\text{-}CH\text{-}C_2H_5$, etc.$NO_2$

547 Compound contains two of more C(=O)O groups:
This subclass is indented under subclass 546. Subject matter wherein the active ingredient contains two or more groups.

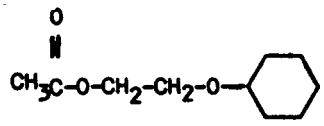
(1) Note. This subclass contains, for example:



, etc

548 Ring in alcohol moiety:
This subclass is indented under subclass 547. Subject matter wherein the Y moiety contains a carbocyclic ring.

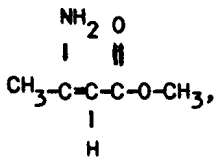
(1) Note. This subclass contains, for example:



, etc.

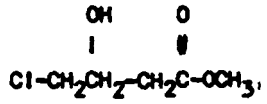
549 Z radical contains carbon to carbon unsaturation:
This subclass is indented under subclass 546. Subject matter wherein the Z radical contains carbon to carbon unsaturation.

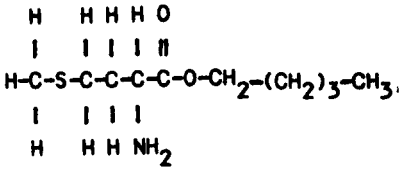
(1) Note. This subclass contains, for example:



550 Z radical contains sulfur or halogen:
This subclass is indented under subclass 546. Subject matter wherein the Z radical contains a sulfur or halogen atom.

(1) Note. This subclass contains, for example:

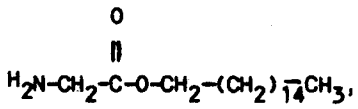




, etc.

551 Z radical contains nitrogen:
This subclass is indented under subclass 546. Subject matter wherein the Z radical contains a nitrogen atom.

(1) Note. This subclass contains, for example:

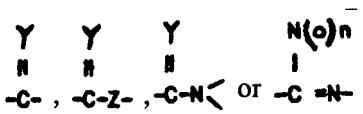


, etc.

552 Z contains an unbroken chain of a least seven carbon atoms bonded directly to the C(=O) group:
This subclass is indented under subclass 546. Subject matter which contains an ester of a higher fatty acid, i.e., a monocarboxylic acid containing an unbroken chain of at least seven acyclic carbon atoms bonded to a carboxylic group.

553 Radical -XH acid, or anhydride, acid halide or salt thereof (X is chalcogen) DOAI:
This subclass is indented under subclass 1. Subject matter which contains a DOAI which has the structure M-A-X-H where A is sulfur, selenium, tellurium, as illustrated below, wherein X,Y and Z are Chalcogens, n=1 or 2

and X is not identical to A, anhydride acid halide or salt thereof, M being any radical not provided for above.



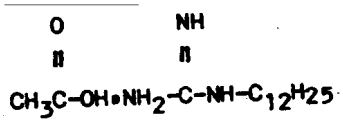
(1) Note. Unless otherwise provided for, the salt of an acid is classified on the basis of the corresponding acid.

(2) Note. This subclass specifically provides for acyclic anhydrides and acyclic acyl halides.

554 Amine addition salt of the acid:
This subclass is indented under subclass 553. Subject matter in which the active ingredient is an addition salt of an amine and an organic acid.

(1) Note. For the purpose of this and indented subclasses, amines are compounds identical in constitution with the derivatives of ammonia (NH_3) wherein the nitrogen atom thereof is bonded to at least one carbon of an organic radical.

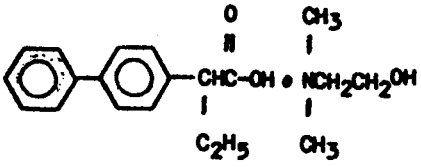
(2) Note. This subclass contains, for example:



, etc.

555 Benzene ring in acid moiety:
This subclass is indented under subclass 554. Subject matter wherein the acid moiety contains a benzene ring.

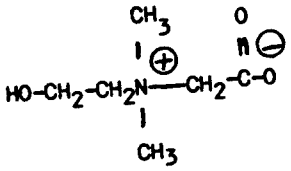
(1) Note. This subclass contains for example:

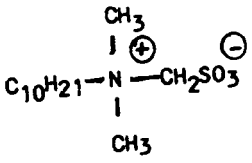


, etc.

556 Inner quarternary ammonium salt (e.g., betaine, etc.):
This subclass is indented under subclass 553. Subject matter wherein the active ingredient is an inner quaternary ammonium salt, as in betaine.

(1) Note. This subclass contains, for example:





, etc.

557 Carboxylic acid, percarboxylic acid, or salt thereof (e.g., peracetic acid, etc.):
This subclass is indented under subclass 553. Subject matter wherein the active ingredient is a carboxylic acid (R-COOH), or percarboxylic acid (RO-OH) or salt thereof, and wherein R is hydrogen or an organic radical bonded to the C=O by a carbon.

558 Higher fatty acid or salt thereof:
This subclass is indented under subclass 557. Subject matter wherein the acyl group has an unbroken chain of at least seven acyclic carbon atoms bonded to the carbon of the carbonyl group, i.e., higher fatty acids.

559 Ring containing:
This subclass is indented under subclass 558. Subject matter wherein the organic active ingredient contains a carbocyclic ring attached indirectly or directly to the higher fatty acid chain.

560 Carbon to carbon unsaturation:
This subclass is indented under subclass 558. Subject matter wherein the chain of at least seven carbon atoms has carbon to carbon unsaturation.

561 Nitrogen other than as nitro or nitroso nonionically bonded:
This subclass is indented under subclass 557. Subject matter wherein the organic active ingredient contains a nitrogen atom other than as nitro or nitroso nonionically bonded thereto.

562 Sulfur nonionically bonded:
This subclass is indented under subclass 561. Subject matter wherein the organic active ingredient also contains a sulfur atom nonionically bonded thereto.

563 RC)=O)N containing (i.e., carboxamide) (R is C or H):
This subclass is indented under subclass 561. Subject matter wherein at least one nitrogen is present in a carboxamido group, i.e., RC(=O)N, wherein R is C or H.

564 Plural nitrogens nonionically bonded:
This subclass is indented under subclass 561. Subject matter wherein at least two nitrogen atoms are nonionically bonded to the active ingredient.

565 N-N or N=C(-N)N containing (e.g., hydrazines, hydrazones, or guanidines, etc.):
This subclass is indented under subclass 564. Subject matter wherein two nitrogens are singly bonded to each other (hydrazine or hydrazone grouping) or nitrogens are present which form the guanidino are present which form the guanidino grouping (N-C(=N)-N.

566 Polycarboxylic acid:
This subclass is indented under subclass 864. Subject matter wherein the active ingredient has at least two C(=O)-O groups bonded to carbons of the active ingredient.

(1) Note. The O groups can be bonded to the same or different carbons.

567 Benzene ring nonionically bonded:
This subclass is indented under subclass 561. Subject matter wherein the active ingredient contains a benzene ring, nonionically bonded thereto.

568 Benzene ring nonionically bonded:
This subclass is indented under subclass 557. Subject matter wherein the active ingredient contains a benzene ring, nonionically bonded thereto.

569 Polycyclo ring system:
This subclass is indented under subclass 568. Subject matter wherein the active ingredient has a fused or bridged ring system therein which is not ionically bonded.

570 Carboxy or salt thereof only attached indirectly to the benzene ring:
This subclass is indented under subclass 568. Subject matter wherein a carboxyl or salt thereof is attached indirectly to a benzene ring by nonionic bonding.

(1) Note. If plural benzene rings are present, the carboxyl or salt thereof must not be directly attached to any of the benzene rings.

571 Ether oxygen single bonded to carboxylic acid, percarboxylic acid or salt thereof through an acyclic carbon or acyclic carbon chain:
This subclass is indented under subclass 570. Subject mater wherein the active ingredient contains an ether oxygen single bonded to a carboxylic or percarboxylic acid group or salt thereof through an acyclic carbon or acyclic carbon chain, e.g., contains the group O-C=C-C(O)-OH, etc.

572 Cyclic carboxylic acid containing three to five carbons or cyclic percarboxylic acid containing three to five carbons of salt thereof:
This subclass is indented under subclass 557. Subject mater wherein the active ingredient contains a nonionically bonded ring when has exactly 3, 4 or 5 carbon atoms.

573 Cyclopentyl or cyclopentene (e.g., prostaglandins, etc.):
This subclass is indented under subclass 572. Subject matter wherein the ring is cyclopentyl or cyclopentene.

(1) Note. This subclass contains certain prostaglandins, etc.

574 Polycarboxylic acid or salt thereof:
This subclass is indented under subclass 557. Subject matter wherein the active ingredient contains at least two C(=O)-O groups bonded to the same or different carbons.

575 Hydroxamic acid or salt thereof:
This subclass is indented under subclass 553. Subject matter wherein the acid is hydroxamic acid on a salt thereof, i.e., RC(=O)- NOH, wherein R is hydrogen or an organic radical bonded to the C=O by a carbon.

576 Benzene ring containing:
This subclass is indented under subclass 553. Subject matter wherein the active ingredient contains a benzene ring which is nonionically bonded.

577 Polycyclo ring system:
This subclass is indented under subclass 576. Subject matter wherein the active ingredient contains a fused or bridged ring system which is nonionically bonded.

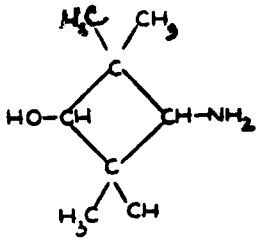
578 Acyclic acid or salt thereof:
This subclass is indented under subclass 553. Subject matter wherein the radical -X-H acid compound is acyclic.

579 Nitrogen containing other than solely as a nitrogen in an inorganic ion of an addition salt, a nitro or a nitroso, DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound containing nitrogen in a form other that as nitrogen in an inorganic ion of an addition salt, nitro or nitroso.

(1) Note. This group of compounds includes for example, ureas, thioureas, amides, amidines, azines, hydrazones, carbodimides, oximes, hydroxylamines and amines, inter alia, as well as their inorganic acid salts.

(2) Note. This subclass is residual for alicyclic amines not specifically provided for below.

(3) Note. This subclass contains, for example:



, etc.

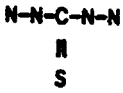
(4) Note. If amino nitrogen is present, the compound may additionally contain nitro, nitroso or nitrogen in an inorganic ion of an addition salt.

(5) Note. Component parts of an "adduct" will be considered to be attached to each other ionically, except if it is clear that the mode of attachment is nonionic.

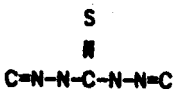
580 Thioureas (i.e., N-C(=S)-N:
This subclass is indented under subclass 579. Subject matter containing the grouping NN.

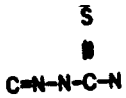
(1) Note. N=N is not provided for in this subclass; see appropriate subclass and in particular subclass 631.

581 Thiocarbazides or thiosemicarbazides (i.e., N-N-C(S=)-N), containing:
This subclass is indented under subclass 580. Subject matter containing the thiocarbazide radical, shown in the first illustration below, or the thiosemicarbazide radical, shown in the second illustration below.



582 **Thiocarbazones or thiosemicarbazones (i.e., C=N-N-C(=S)-N) containing:**
This subclass is indented under subclass 581. Subject matter wherein the compound contains the thiocarbazone radical, shown in the first illustration, below, or the thiosemicarbazone radical, shown in the second illustration, below.





583 **Benzene ring containing:**
This subclass is indented under subclass 582. Subject matter wherein the compound contains a benzene ring.

584 **C=O, sulfur or cyano attached directly to thiourea nitrogen by nonionic bonding:**
This subclass is indented under subclass 580. Subject matter wherein a thiourea nitrogen has a carbonyl, sulfur or nitrile (cyano) group directly attached by nonionic bonding.

585 **Benzene ring containing:**
This subclass is indented under subclass 580. Subject matter wherein the compound contains a benzene ring.

586 **Nitrogen attached indirectly to -C(=S)- group by nonionic bonding:**
This subclass is indented under subclass 585. Subject matter which contains nitrogen in addition to thiourea nitrogen.

587 **Oxygen containing:**
This subclass is indented under subclass 585. Subject matter which contains oxygen in the compound.

588 **Ureas (i.e., N-C(=O)N:**
This subclass is indented under subclass 579. Subject matter which contains the grouping NN.

(1) Note. This subclass contains, for example, adducts of urea with inorganic compounds such as hydrogen peroxide or calcium nitrate.

589 **Nitro or nitroso bonded directly to amino nitrogen (e.g., nitramine, nitrosoamine, nitro-urea, etc.):**
This subclass is indented under subclass 588. Subject matter containing a nitro or nitroso group bonded directly to an amino nitrogen.

590 **Carbazides or semicarbazides (i.e., N-N-C (=O)-N) containing:**
This subclass is indented under subclass 588. Subject matter containing carbazides or semicarbazides having the grouping N-N--N-N or N-N--N, respectively.

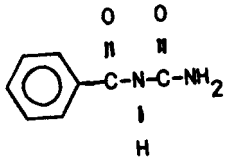
591 **Biurets (i.e., N-C(=O)-N-C(=O)-N):**
This subclass is indented under subclass 588. Subject matter containing biurets having the grouping NNN.

592 **Sulfur attached directly to urea nitrogen by nonionic bonding:**
This subclass is indented under subclass 588. Subject matter containing sulfur attached directly to urea nitrogen by nonionic bonding.

593 **Sulfur is part of a substituent which contains additional nitrogen:**
This subclass is indented under subclass 592. Subject matter wherein the sulfur is part of a group attached to urea nitrogen which contains additional nitrogen.

594 **Additional C=O bonded directly to urea nitrogen:**
This subclass is indented under subclass 558. Subject matter wherein a urea nitrogen is directly bonded to a C=O group.

(1) Note. This subclass contains, for example:



,etc.

595 **Benzene ring containing:**
This subclass is indented under subclass 588. Subject matter containing a benzene ring (i.e., aromatic).

596 **Benzene ring bonded directly to urea nitrogen:**
This subclass is indented under subclass 595. Subject matter wherein a benzene ring is directly bonded to a urea nitrogen.

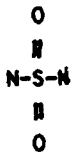
597 **Benzene ring is part of a substituent which contains nitrogen:**
This subclass is indented under subclass 596. Subject matter wherein the benzene ring is part of a substituent which contains additional nitrogen.

598 **Benzene ring is part of a substituent which contains oxygen:**
This subclass is indented under subclass 596. Subject matter wherein the benzene ring is part of a substituent which contains oxygen.

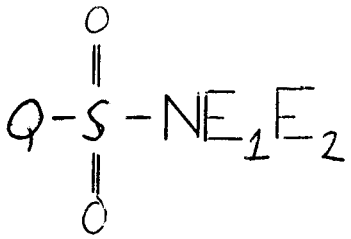
599 **Thiocarboxamides (i.e., C(=S)-N):**
This subclass is indented under subclass 579. Subject matter containing thiocarboxamides which have the grouping

.

600 **Sulfamides (i.e., N-(O=)S(=O)-N):**
This subclass is indented under subclass 579. Subject matter containing diamides of sulfuric acid (i.e., sulfamides) which have the grouping

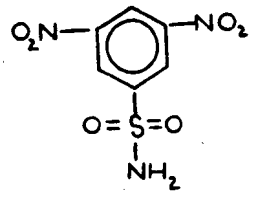


601 **Sulfonamides (i.e., Q-(O=)S(=O)-N, wherein Q is a substituent and wherein any substituent attached to nitrogen will be referred to as E:**
This subclass is indented under subclass 579. Subject matter containing sulfonamides which have the grouping, illustrated below, wherein Q, E_1, and E_2 are substituents.



602 **Contains benzene ring:**
This subclass is indented under subclass 601. Subject matter where the sulfonic acid residue is aromatic (i.e., benzene ring containing).

603 **Nitrogen in Q:**
This subclass is indented under subclass 602. Subject matter wherein the residue of the aromatic sulfonamide contains nitrogen, e.g.,



, etc.

604 Q is monocyclic:
This subclass is indented under subclass 602. Subject matter wherein the residue of the aromatic sulfonic acid is monocyclic, i.e., Q contains only one ring.

605 Q is acyclic and benzene ring in a substituent E:
This subclass is indented under subclass 601. Subject matter wherein the sulfonic acid residue contains no ring and the substituent (E) bonded to the nitrogen portion of the sulfonamide group contains a benzene ring.

606 N-S-S containing:
This subclass is indented under subclass 579. Subject matter which includes thiosulfenamides containing the grouping N-S-S.

607 N-S-S containing or contains a nitrogen bonded directly to a S=O Group (e.g., sulfinamides, etc.):
This subclass is indented under subclass 579. Subject matter including a compound which contains two amino nitrogen nonionically bonded directly to the same sulfur or which contains sulfur doubly bonded to oxygen and directly attached to an amino nitrogen by nonionic bonding, as for example, sulfinamides, etc.

608 Sulfur attached directly to amino nitrogen by nonionic bonding (e.g., sulfenamides, etc.):
This subclass is indented under subclass 579. Subject matter containing sulfur bonded directly to an amino nitrogen by nonionic bonding, as for example sulfenamides.

609 Cyanamides (i.e., compounds containing cyano bonded directly to amino nitrogen):
This subclass is indented under subclass 579. Subject matter containing cyanamides which have a cyano group bonded directly to an amino nitrogen.

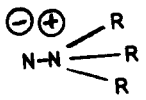
610 Nitramines (i.e., compounds containing nitro bonded directly to amino nitrogen):
This subclass is indented under subclass 579. Subject matter containing nitramines wherein a nitro group is attached directly to an amino nitrogen.

611 Nitrosamines (i.e., compounds containing nitroso bonded directly to amino nitrogen):
This subclass is indented under subclass 579. Subject matter containing nitrosamines, wherein a nitroso group is attached directly to an amino nitrogen.

612 Haloamines (i.e., compounds containing halogen attached directly to amino nitrogen by nonionic bonding):
This subclass is indented under subclass 579. Subject matter containing haloamines wherein halogen is attached directly to an amino nitrogen by nonionic bonding.

613 Carboxamides (i.e., R-C(=O)-N, wherein r is a radical having carbon bonded directly to the C(=O)-N or is hydrogen and wherein any substituent attached to nitrogen will be referred to as E):
This subclass is indented under subclass 579. Subject matter including carboxamides which have the grouping RN wherein R is either a radical having carbon bonded directly to the C=O or is hydrogen and wherein any substituent attached to nitrogen will be referred to as E.

614 N-N containing (e.g., aminimine, hydrazine etc.):
This subclass is indented under subclass 613. Subject matter which has the N-N grouping, e.g., aminimines, illustrated below, or another compound with contains the grouping N-N.



, etc.

615 R contains benzene ring:
This subclass is indented under subclass 614. Subject matter wherein the carboxylic acid residue (substituent R) contains a benzene ring.

616 Plural carboxamide groups or plural C=O groups bonded directly to the same nitrogen:
This subclass is indented under subclass 613. Subject matter containing more than one carboxamide group or containing plural carbonyls bonded directly to the same nitrogen.

617 R contains benzene ring:
This subclass is indented under subclass 613. Subject matter wherein the residue of the carboxylic acid (R) contains a benzene ring.

618 Sulfur in R:
This subclass is indented under subclass 613. Subject matter wherein the residue of the carboxylic acid (R) also contains sulfur.

619 Nitrogen in R:
This subclass is indented under subclass 617. Subject matter wherein the carboxylic acid residue (R) also contains nitrogen.

620 The nitrogen in R is an amino nitrogen attached indirectly to a ring by acyclic bonding:
This subclass is indented under subclass 619. Subject matter wherein the carboxylic acid residue (R) contains an amine nitrogen indirectly attached to a ring through a single atom or through an acyclic chain.

621 C=O in R:
This subclass is indented under subclass 617. Subject matter wherein the carboxylic acid residue (R) contains a C=O group.

622 C-O group in R:
This subclass is indented under subclass 617. Subject matter wherein the carboxylic acid residue (R) contains a C-O group.

623 Plural alicyclic rings in R:
This subclass is indented under subclass 613. Subject matter wherein the carboxylic acid residue (R) contains more that one alicyclic ring.

624 Three-membered ring in R:
This subclass is indented under subclass 613. Subject matter wherein the carboxylic acid residue (R) contains a three membered ring.

625 R is acyclic:
This subclass is indented under subclass 613. Subject matter wherein the carboxylic acid residue (R) does not contain a ring.

626 Nitrogen in R:
This subclass is indented under subclass 625. Subject matter wherein the carboxylic acid residue (R) contains nitrogen.

627 Carbon to carbon unsaturation in R:
This subclass is indented under subclass 625. Subject matter wherein the carboxylic acid residue (R) contains a double or triple bond between two carbons.

628 Halogen bonded directly to carbon in R:
This subclass is indented under subclass 625. Subject matter wherein the carboxylic acid residue (R) contains halogen bonded directly to carbon.

629 R is hydrogen of a lower saturated alkyl of less that seven carbons:
This subclass is indented under subclass 625. Subject matter wherein the carboxylic acid residue (R) is from a lower fatty acid, i.e., a fatty acid of one to seven carbons containing a C of the carboxy group.

630 A ring or polycyclo ring system in a substituent E is attached indirectly to the carboxamide nitrogen or to an amino nitrogen in substituent E by acyclic nonionic bonding:
This subclass is indented under subclass 629. Subject matter wherein the amino nitrogen containing residue contains a ring or a polycyclo ring system which is attached indirectly to the carboxamide nitrogen or to an additional amino nitrogen in the amino nitrogen containing residue by acyclic nonionic bonding.

631 Amidines (i.e., N=C-N):
This subclass is indented under subclass 579. Subject matter containing amidines which have the grouping N=C-N.

632 Amidino hydrazines or hydrazones (i.e., N=C-N-N or N-N=C-N):
This subclass is indented under subclass 631. Subject matter including a compound which is an amidino hydrazine containing the grouping

N=C-N-N or an amidino hydrazone containing the grouping O-N=C-N.

633 Amidoximes (i.e., ON=C-N):
This subclass is indented under subclass 631. Subject matter which included amidoximes containing the grouping O-N=C-N.

634 Guanidines (i.e., N=C(-N)-N:
This subclass is indented under subclass 631. Subject matter which includes guanidines, containing the grouping NN.

635 Biguanidines (i.e., N=C(-N)-N-(-N)C=N:
This subclass is indented under subclass 634. Subject matter which includes biguanidines, containing the grouping NNN.

636 Polyamidines:
This subclass is indented under subclass 631. Subject matter wherein there is more than one amidine group.

637 Benzene ring containing:
This subclass is indented under subclass 631. Subject matter wherein an amidine contains a benzene ring.

638 Nitrogen double bonded directly to carbon:
This subclass is indented under subclass 579. Subject matter containing compounds which are characterized by the presence of the grouping C=N.

639 Hydrazones (i.e., C=N-N):
This subclass is indented under subclass 638. Subject matter including the grouping C=N-N.

640 Oximes (i.e., C=N-O):
This subclass is indented under subclass 638. Subject matter which includes compounds containing the grouping C=N-O.

641 Aldimines or ketimines which contain a benzene ring (i.e., R-C=N wherein Ri is C or H):
This subclass is indented under subclass 638. Subject matter which includes aldimines of Ketimines containing a benzene ring.

(1) Note. This subclass contains compounds having the group R-C=N wherein the R is either H or a substituent with C bonded directly to the C of said group.

642 Quaternary ammonium containing:
This subclass is indented under subclass 579. Subject matter which contains compounds wherein a pentavalent nitrogen is bonded by four valences to carbon.

643 Benzene ring containing:
This subclass is indented under subclass 642. Subject matter wherein the compound contains a benzene ring.

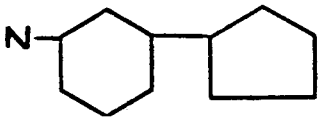
644 Amine oxides:
This subclass is indented under subclass 579. Subject matter which contains compounds characterized by the structure.

645 Nitroxides, oxyamines or hydroxyamines (i.e., N-O):
This subclass is indented under subclass 579. Subject matter containing compounds having the grouping N-O.

646 Benzene ring containing:
This subclass is indented under subclass 579. Subject matter wherein the compound contains a benzene ring.

647 Amine nitrogen and a ring bonded directly to the same ring and any other amino nitrogen in the compound is bonded directly to one of the rings:
This subclass is indented under subclass 646. Subject matter wherein a benzene ring is bonded directly to another ring and at least one amino nitrogen is bonded directly to one of the rings and any other amino nitrogen in the compound is also bonded to one of the rings.

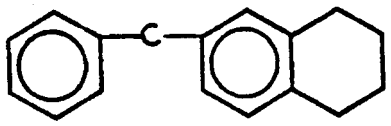
(1) Note. This subclass contains compounds having for example the group:



, etc.

648 Two aryl rings or aryl ring systems bonded directly to the same acyclic carbon:
This subclass is indented under subclass 646. Subject matter wherein two benzene rings or benzene containing polycyclos are bonded to the same acyclic carbon.

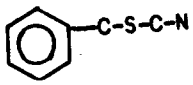
(1) Note. This subclass contains for example the following group:



, etc.

649 Amino nitrogen attached to aryl ring or aryl ring system by an acyclic carbon or acyclic chain:
This subclass is indented under subclass 646. Subject matter wherein an amino nitrogen is indirectly bonded to an aryl ring system through a single carbon or through an acyclic chain.

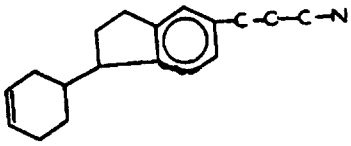
(1) Note. This subclass includes for example the following group:



, etc.

650 The aryl ring system is bonded directly to another ring or ring system:
This subclass is indented under subclass 649. Subject matter wherein the aryl ring or ring system is bonded directly to another ring or ring system.

(1) Note. This subclass contains for example the group:



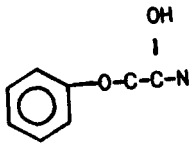
, etc.

, etc.

651 Ether oxygen is part of the chain:
This subclass is indented under subclass 649. Subject matter wherein oxygen is a part of the chain.

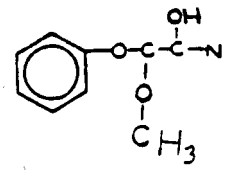
652 Alkanol group between the amino nitrogen and an ether oxygen which is bonded directly to the aryl ring or aryl ring system (i.e., aryloxy alkanol amines):
This subclass is indented under subclass 651. Subject matter wherein an alkanol group which is bonded directly to the aryl ring or aryl ring system.

(1) Note. This subclass includes for example, the group:



,etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
651, for a compound containing the group, as shown below:



653 Hydroxy, bonded directly to carbon, attached directly or indirectly to the acyclic

carbon or chain by acyclic nonionic bonding (e.g., beta hydroxy phenethylamines, etc.):
This subclass is indented under subclass 649. Subject matter wherein a hydroxy group, which is bonded directly to a carbon, is attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding.

654 The chain consists of two or more carbons which are unsubstituted or have acyclic hydrocarbyl substituents only:
This subclass is indented under subclass 649. Subject matter wherein the chain consists of two or more carbons which are unsubstituted or substituted by acyclic hydrocarbon groups.

655 The aryl ring or aryl ring system and amino nitrogen are bonded directly to the same acyclic carbon, which carbon additionally has only hydrogen or acyclic hydrocarbyl substituents bonded directly thereto:
This subclass is indented under subclass 649. Subject matter wherein an aryl ring or ring system and an amino nitrogen are both directly bonded to the same acyclic carbon which carbon additionally has only hydrogen or acyclic hydrocarbyl substituents bonded directly thereto.

656 Polycyclo ring system:
This subclass is indented under subclass 646. Subject matter which contains a polycyclo ring system.

657 Bicyclo ring system:
This subclass is indented under subclass 656. Subject matter wherein the polycyclo ring system is bicyclo.

658 Two benzene rings bonded directly to the same nitrogen:
This subclass is indented under subclass 646. Subject matter where two benzene rings are bonded directly to the same nitrogen.

659 Alicyclic ring or ring system and amino nitrogen are attached indirectly by an acyclic carbon or acyclic carbon or acyclic chain:
This subclass is indented under subclass 579. Subject matter wherein an amino nitrogen is Indirectly bonded to an alicyclic ring or ring system through a single acyclic carbon or through an acyclic chain.

660 Plural alicyclic rings:
This subclass is indented under subclass 579. Subject matter wherein there is more than one alicyclic ring.

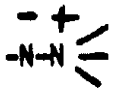
661 Polycyclo ring system:
This subclass is indented under subclass 660. Subject matter wherein plural rings are in the form of a polycyclo ring system.

662 Tricyclo ring system:
This subclass is indented under subclass 661. Subject matter wherein the polycyclo ring system contains three rings in the polycyclo ring system.

663 Acyclic:
This subclass is indented under subclass 579. Subject matter wherein the compound contains no ring.

664 N-N containing (e.g., aminimine, hydrazine, etc.):
This subclass is indented under subclass 663. Subject matter containing the grouping N-N.

(1) Note. This subclass contains for example the group



, etc.

665 Sulfur containing:
This subclass is indented under subclass 663. Subject matter wherein the compound contains sulfur.

666 Aldehyde or ketone containing:
This subclass is indented under subclass 663. Subject matter wherein the compound contains an aldehyde or ketone group.

667 C-O group containing:
This subclass is indented under subclass 663. Subject matter which contains a compound with a C-O group.

668 Polyether:
This subclass is indented under subclass 667. Subject matter wherein the compound contains more than one C-O-C group.

669 Polyhydroxy:
This subclass is indented under subclass 667. Subject matter wherein the compound contains more than one C-OH group.

670 Monoether:
This subclass is indented under subclass 667. Subject matter wherein the compound contains only one C-O-C group.

671 Carbon to carbon unsaturation:
This subclass is indented under subclass 663. Subject matter wherein the compound contains a double or triple bond between two carbons.

672 Halogen bonded directly to carbon:
This subclass is indented under subclass 663. Subject matter wherein the compound contains a halogen bonded directly to carbon.

673 Plural amino nitrogens:
This subclass is indented under subclass 663. Subject matter wherein the compound contains more than one amino nitrogen.

674 Three or more amino nitrogens:
This subclass is indented under subclass 673. Subject matter wherein the compound contains three or more amino nitrogen.

675 Ketone DOAI:
This subclass is indented under subclass 1. Subject matter wherein the organic active ingredient is a Ketone.

(1) Note. See section II, Glossary, for the definition of Ketone.

676 Nitrogen containing:
This subclass is indented under subclass 675. Subject matter which contains a nitro or nitroso radical.

677 Bicyclo ring system having a benzene ring as one of the cyclos:
This subclass is indented under subclass 676. Subject matter in which a benzene ring is part of a bicyclo ring system.

678 Benzene ring containing:
This subclass is indented under subclass 675. Subject matter which contains a benzene ring.

679 Plural rings:
This subclass is indented under subclass 678. Subject matter which contains at least two rings.

680 Polycyclo ring system:
This subclass is indented under subclass 679. Subject matter which contains a polycyclo ring system.

681 Bicyclo:
This subclass is indented under subclass 680. Subject matter wherein the polycyclo ring system is a bicyclo ring system.

682 Naphthyl ring system:
This subclass is indented under subclass 681. Subject matter wherein the bicyclo ring system is a naphthyl ring system.

683 Alicyclic ring:
This subclass is indented under subclass 679. Subject matter which contains at least one alicyclic ring.

684 Five-membered alicyclic ring:
This subclass is indented under subclass 683. Subject matter which contains a five-membered alicyclic ring.

685 C=O bonded directly to benzene ring:
This subclass is indented under subclass 679. Subject matter which contains a group directly bonded to a benzene ring.

686 Two benzene rings bonded directly to the same C=O:
This subclass is indented under subclass 685. Subject matter wherein two benzene rings are directly bonded to the same group.

687 Oxygen single bonded to carbon:
This subclass is indented under subclass 686. Subject matter which contains C-O group.

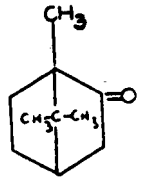
688 C=O bonded directly to benzene ring (e.g., acetophenone, etc.):
This subclass is indented under subclass 678. Subject matter wherein is bonded directly to the benzene ring.

689 Oxygen single bonded to carbon:
This subclass is indented under subclass 688. Subject matter which contains a C-O- group.

690 Alicyclic ring containing:
This subclass is indented under subclass 675. Subject matter which contains an alicyclic ring.

691 Plural alicyclic ring.
This subclass is indented under subclass 690. Subject matter which contains more than one alicyclic ring.

692 Camphor or nuclear substituted derivative thereof:
This subclass is indented under subclass 691. Subject matter which is camphor, as illustrated below, or a nuclear substituted derivative thereof.



693 Aldehyde DOAI:
This subclass is indented under subclass 1. Subject matter which includes an aldehyde.

(1) Note. See section II, Glossary, for definition of aldehyde.

694 Formaldehyde:
This subclass is indented under subclass 693. Subject matter containing formaldehyde having the grouping HH.

695 With polycyclo compound:
This subclass is indented under subclass 694. Subject matter which also contains a polycyclo compound in admixture therewith.

696 With alcohol:
This subclass is indented under subclass 694. Subject matter which also contains alcohol in admixture therewith.

697 With nitrogen containing compound:
Subject matter under subject 694 which also contains a nitrogen containing compound in admixture therewith.

698 With preservative or stabilizer:
This subclass is indented under subclass 693. Subject matter which also contains a preserving or stabilizing agent in admixture therewith.

699 Benzene ring containing:
This subclass is indented under subclass 693. Subject matter wherein the compound contains a benzene ring.

700 Polycyclo ring system:
This subclass is indented under subclass 699. Subject matter wherein the compound contains a polycyclo ring system.

701 Acyclic carbon to carbon unsaturation:
This subclass is indented under subclass 699. Subject matter wherein the compound contains a double or triple bond between two carbons neither of which is a member of a ring.

702 Sulfur containing:
This subclass is indented under subclass 693. Subject matter wherein the compound contains sulfur.

703 Carbon to carbon unsaturation:
This subclass is indented under subclass 693. Subject matter wherein the compound contains a double or triple bond between two carbons.

704 Nitrogen containing:
This subclass is indented under subclass 693. Subject matter wherein the compound contains nitrogen.

705 Plural C=O groups:
This subclass is indented under subclass 693. Subject matter wherein the compound contains at least two of the following groups: C=O.

706 Sulfur, selenium or tellurium compound (e.g., thioalcohols, mercaptans, etc.) DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound containing sulfur, selenium or tellurium.

707 Persulfide (e.g., R-S-S-R, etc.):
This subclass is indented under subclass 706. Subject matter in which the sulfur compound is one containing two or more sulfur atoms joined directly together.

708 Oxygen bonded directly to sulfur (e.g., sulfoxides, etc.):
This subclass is indented under subclass 706. Subject matter wherein the compound contains oxygen directly bonded to sulfur.

(1) Note. This subclass includes sulfoxides (S=O) for example.

709 Plural oxygens bonded directly to the same sulfur (e.g., sulfones, etc.):
This subclass is indented under subclass 708. Subject matter wherein at least two oxygens are directly bonded to the same sulfur atom.

(1) Note. This subclass includes sulfones (O=S=O) for example.

710 Acyclic carbon to carbon unsaturation:
This subclass is indented under subclass 709. Subject matter wherein the compound contains a double or triple bond between two carbons neither of which is a member of a ring.

711 Acyclic:
This subclass is indented under subclass 708. Subject matter wherein the compound does not contain a ring.

712 Thioether:
This subclass is indented under subclass 706. Subject matter in which the compound has the R-S-R structure wherein the R's are diverse or identical organic radicals.

713 Acyclic carbon to carbon unsaturation:
This subclass is indented under subclass 712. Subject matter wherein the compound contains a double or triple bond between two carbons neither of which is a member of a ring.

714 Peroxide DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound containing an O-O group.

715 Ether DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound containing an oxygen atom which is bonded to carbons of two discrete organic radicals and has the grouping R-O-R wherein the R's are diverse or identical organic radicals.

716 Nitrogen containing:
This subclass is indented under subclass 715. Subject matter wherein the compound contains nitrogen.

717 Benzene ring containing:
This subclass is indented under subclass 715. Subject matter wherein the compound contains a benzene ring.

718 Plural oxygens:
This subclass is indented under subclass 717. Subject matter wherein the compound contains at least two oxygen atoms.

719 Alicyclic ring:
This subclass is indented under subclass 718. Subject matter wherein the compound contains an alicyclic ring.

720 Acyclic carbon to carbon unsaturation:
This subclass is indented under subclass 718. Subject matter wherein the compound contains a double or triple bond between two carbons neither of which is a member of a ring.

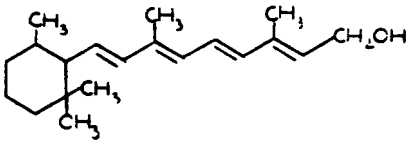
721 Plural benzene rings:
This subclass is indented under subclass 718. Subject matter wherein the compound contains two or more benzene rings.

722 Acyclic:
This subclass is indented under subclass 715. Subject matter wherein the compound does not contain a ring.

723 Plural oxygens:
This subclass is indented under subclass 722. Subject matter wherein the compound contains at least two oxygen atoms.

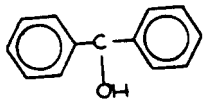
724 C-O group (e.g., alcohol, alcoholate, etc.) DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound containing a C-O- group.

725 Vitamin a compound or derivative:
This subclass is indented under subclass 724. Subject matter wherein the compound is vitamin A or the alcoholates thereof. See illustration below.

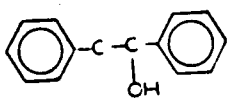


726 Diphenyl-substituted acyclic alcohol or alcoholate:
This subclass is indented under subclass 724. Subject matter in which a hydroxyl group is attached to a single carbon atom, or to a chain of two or more carbon atoms, which link two phenyl groups.

(1) Note. This subclass contains, for example:

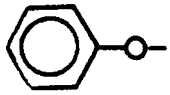


and



727 Nitrogen containing:
This subclass is indented under subclass 724. Subject matter wherein the compound contains nitrogen.

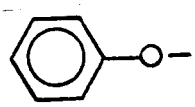
728 C of C-O- group is nuclear C of a benzene ring (e.g., phenol, phenolate, etc.):
This subclass is indented under subclass 727. Subject matter wherein the C-O- group of the compound is a group, i.e., the carbon of the C-O group is a nuclear carbon of a benzene ring. See illustration below.



729 Alicyclic ring containing:
This subclass is indented under subclass 724. Subject matter wherein the compound contains an alicyclic ring.

730 Benzene ring containing:
This subclass is indented under subclass 724. Subject matter wherein the compound contains a benzene ring.

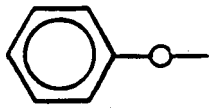
731 C of C-O- group is nuclear C of a benzene ring (e.g., phenol, phenolate, etc.):
This subclass is indented under subclass 730. Subject matter wherein the C-O- group of the compound is a group, i.e., the carbon of the C-O- group is a nuclear carbon of a benzene ring. See illustration below.



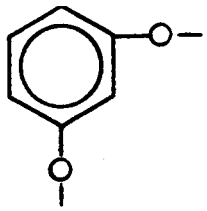
732 Polycyclo ring system (e.g., naphthols, etc.):
This subclass is indented under subclass 731. Subject matter wherein the compound contains a polycyclo ring system.

733 Acyclic carbon to carbon unsaturation:
This subclass is indented under subclass 731. Subject matter wherein the compound contains a double or triple bond between two carbons neither of which is a member of a ring.

734 Two or more separate aryl-O- groups:
This subclass is indented under subclass 731. Subject matter wherein the compound contains at least two groups as illustrated below.

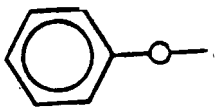


(1) Note. This subclass is not satisfied by the group, illustrated below, alone.



735 Nuclear halogenated:
This subclass is indented under subclass 734. Subject matter wherein the compound contains a halogen bonded directly to a nuclear carbon of a benzene ring.

736 Additional benzene ring containing:
This subclass is indented under subclass 731. Subject matter wherein the compound contains at least one benzene ring in addition to the group, as illustrated below.



737 Nuclear halogenated:
This subclass is indented under subclass 731. Subject matter wherein the compound contains a halogen bonded directly to a nuclear carbon of a benzene ring.

738 Polyhydroxy:
This subclass is indented under subclass 724. Subject matter wherein the compound contains at least two -OH groups.

739 Carbon to carbon unsaturation:
This subclass is indented under subclass 724. Subject matter wherein the compound contains a double or triple bond between two carbon atoms.

740 Nitrogen containing compound DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound containing a nitrogen atom.

741 Benzene ring containing:
This subclass is indented under subclass 740. Subject matter wherein the compound contains a benzene ring.

742 Polynitro:
This subclass is indented under subclass 740. Subject matter wherein the compound contains at least two $-NO_2$ groups.

743 Halogenated hydrocarbon DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound consisting of carbon, hydrogen and halogen atoms or only of carbon and halogen atoms.

744 Unsaturated aliphatic compound:
This subclass is indented under subclass 743. Subject matter wherein the compound contains no rings and contains a double or triple bond between two carbon atoms.

745 Alkyne:
This subclass is indented under subclass 744. Subject matter wherein the compound contains a triple bond between two carbon atoms.

746 Plural halogenated hydrocarbon compounds:
This subclass is indented under subclass 744. Subject matter wherein there is more than one halogenated hydrocarbon compound.

747 Carbocyclic:
This subclass is indented under subclass 743. Subject matter wherein the halogenated hydrocarbon contains a ring in which all ring members are carbons.

748 Two benzene rings directly attached to an acyclic hydrocarbon or acyclic halogenated hydrocarbon (e.g., D.D.T., etc.):
This subclass is indented under subclass 747. Subject matter wherein the compound contains two phenyl substituents on an acyclic hydrocarbon or acyclic halogenated hydrocarbon and the phenyl groups are connected only through a carbon chain of the acyclic group.

749 Fluorine containing:
This subclass is indented under subclass 748. Subject matter wherein the compound contains fluorine.

750 With organic ether or -OH containing compound, non-DOAI:
This subclass is indented under subclass 748. Subject matter wherein there is an organic ether or -OH containing non-DOAI compound in addition to the halogenated hydrocarbon compound.

751 Benzene ring containing:
This subclass is indented under subclass 747. Subject matter wherein the compound contains a benzene ring.

752 Alkyne:
This subclass is indented under subclass 751. Subject matter wherein the compound contains a triple bond between two carbon atoms.

753 Polycyclo ring system:
This subclass is indented under subclass 751. Subject matter wherein the compound contains a polycyclo ring system.

754 Plural benzene rings:
This subclass is indented under subclass 751. Subject matter wherein the compound contains at least two benzene rings.

755 Polycyclo ring system:
This subclass is indented under subclass 747. Subject matter wherein the compound contains a polycyclo ring system.

756 Bicyclo:
This subclass is indented under subclass 755. Subject matter wherein the polycyclo ring system consists of exactly two rings.

757 Two or more halogenated hydrocarbons:
This subclass is indented under subclass 743. Subject matter which includes at least two halogenated hydrocarbon compounds.

758 Chlorine as only halogen:
This subclass is indented under subclass 743. Subject matter wherein the halogenated hydrocarbon compound contains chlorine and no other halogen atoms.

759 Fluorine as only halogen:
This subclass is indented under subclass 743. Subject matter wherein the halogenated hydrocarbon contains only fluorine halogen atoms.

760 Bromine and chlorine as only halogens:
This subclass is indented under subclass 743. Subject mater wherein the halogenated hydrocarbon contains bromine and chlorine atoms and no other halogen atoms.

761 Bromine and fluorine as only halogens:
This subclass is indented under subclass 743. Subject matter wherein the halogenated hydrocarbon contains bromine and fluorine atoms and no other halogen atoms.

762 Hydrocarbon DOAI:
This subclass is indented under subclass 1. Subject matter which includes a compound consisting of carbon and hydrogen atoms only.

763 Carbocyclic:
This subclass is indented under subclass 762. Subject matter wherein the compound contains at least one ring in which all of the members are carbon.

764 Benzene ring containing:
This subclass is indented under subclass 763. Subject matter wherein the compound contains a polycyclo ring system.

765 Polycyclo ring system:
This subclass is indented under subclass 764. Subject matter wherein the compound contains a polycyclo ring system.

766 Polycyclo ring system:
This subclass is indented under subclass 763. Subject matter wherein the compound contains a polycyclo ring system.

767 With phosphorus containing non-DOAI:
This subclass is indented under subclass 762. Subject matter which also contains a non-DOAI phosphorus atom or compound in admixture therewith.

768 With sulfur containing non-DOAI:
This subclass is indented under subclass 762. Subject matter which also contains a non-DOAI sulfur atom of compound in admixture therewith.

769 DESIGNATED INORGANIC NONACTIVE INGREDIENT OR ELEMENTAL MATERIAL OTHER THAT WATER:
This subclass is indented under the class definition. Subject matter wherein the composition contains an organic nonactive ingredient or elemental material other than water.

(1) Note. This and indented subclasses provide for compositions which (a) do not contain a designated pharmacologically or biologically active ingredient or which (b) are solely disclosed or claimed as useful as inert additives or carriers for an active ingredient of this class, e.g., diluent or carrier.

(2) Note. Within this subclass are compositions which may contain an organic active ingredient which does not meet the definition of the designated organic active ingredient (DOAI).

(3) Note. See section II, Glossary, for the definition "DOAI".

(4) Note. A Claim of the type: "A pharmaceutical composition containing a medicament or drug and l-20 percent by weight of aluminum oxide and 5-20 percent by weight of sodium bicarbonate" is properly classified under the subclass.

770 Siliceous or calcareous material (e.g., cloy, earth, etc.):
This subclass is indented under subclass 769. Subject matter wherein the nonbioactive inorganic compound contains silicon or calcium, e.g., clays, etc.

771 Oxygen gas containing:
This subclass is indented under subclass 769. Subject matter which contains oxygen gas.

772 DESIGNATED ORGANIC NONACTIVE INGREDIENT CONTAINING OTHER THAN HYDROCARBON:
This subclass is indented under the class definition. Subject matter wherein the composition contains a nonbioactive organic compound.

(1) Note. This and indented subclasses provide for compositions which (a) do not contain a pharmacologically or biologically active ingredient or which (b) are solely disclosed or claimed as useful as inert additives or carriers for an active ingredient of this class. For example: topical preparations, e.g., face cream, etc., which are not specifically provided for as special subclasses and which do not contain a designated active ingredient are classified in this and indented subclasses.

(2) Note. Within this subclass are compositions which may contain an organic active ingredient which does not meet the definition of the designated organic active ingredient (DOAI).

(3) Note. See section II, Glossary, for the definition of "DOAI".

(4) Note. A claim of the type: "A pharmaceutical composition containing a medicament or drug and 1-20 percent by weight glycerin, 1-10 percent by weight ethyl alcohol and 5-10 percent by weight of an cationic surfactant" is properly classified under this subclass.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes

of Making, Stabilizing, Breaking, or Inhibiting, appropriate subclasses for subject matter relating to: colloid systems (such as sols*, emulsions, dispersions, foams, aerosols, smokes, gels, or pastes) or wetting agents (such as leveling, penetrating, or spreading); subcombination compositions of colloid systems containing at least an agent specialized and designed for or peculiar to use in making or stabilizing colloid systems; compositions and subcombination compositions specialized and designed for or peculiar to use in breaking (resolving) or inhibiting colloid systems; processes of making the compositions or systems of the class; processes of breaking (resolving) or inhibiting colloid systems; in each instance, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

772.1 Aftertreated solid synthetic organic polymer (e.g., grafting, blocking, etc.):
This subclass is indented under subclass 772. Subject matter wherein the designated organic nonactive ingredient is a solid synthetic organic polymer which has been aftertreated, e.g., a saponified starch acrylonitrile graft copolymer, polyacrylic acid neutralized with sodium hydroxide, etc.

(1) Note. The chemical after treatment of a solid synthetic organic polymer may be to remove or add a group or element or a combination of both procedures.

SEE OR SEARCH CLASS:
522, Synthetic Resins or Natural Rubbers, for the process of treating a solid polymer utilizing wave energy.
525, Synthetic Resins or Natural Rubbers, appropriate subclasses for the aftertreatment of solid synthetic organic polymers.

772.2 Polyvinyl alcohol:
This subclass is indented under subclass 772.1. Subject matter wherein the solid polymer is polyvinyl alcohol, e.g., obtained from the hydrolysis of polyvinyl acetate or copolymers thereof, etc.

772.3 Solid synthetic organic polymer:
This subclass is indented under subclass 772. Subject matter wherein the designated organic nonactive ingredient is a solid synthetic polymer, e.g., a pharmaceutical preparation containing a bio-degradable polymer derived from a monomer mixture comprising 2, 2-bis (epsilon-caprolactone-4-yl) propane, gamma-valerolactone and epsilon-caprolactone, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
78.01+, for a pharmaceutical composition which contains a solid synthetic organic polymer which functions as a designated organic active ingredient.
78.08, for a more thorough discussion on polymers which are proper for Classes 424, 514, and Class 520 Series.

SEE OR SEARCH CLASS:
522, Synthetic Resins or Natural Rubbers, for the process of preparing a solid polymer utilizing wave energy.
526, Synthetic Resins or Natural Rubbers, for the perparation of solid synthetic polymers derived from ethylenic monomers only, e.g., acrylic acid, etc.
527, Synthetic Resins or Natural Rubbers, for the preparation of solid synthetic polymers derived from the reaction between a natural product and other chemical intermediates, e.g., a carbohydrate and polyisocyanate, a protein and an ethylenic reactant, etc.
528, Synthetic Resins or Natural Rubbers, subclasses 1+ for the preparation of a solid synthetic polymer derived from at least one saturated reactant, e.g., toluene diisocyanate and polyethylene glycol, etc.; subclasses 480+ treating a solid polymer merely with heat.

772.4 Polymer from ethylenic monomers only:
This subclass is indented under subclass 772.3. Subject matter wherein the polymer is derived from ethylenic monomers only, e.g., a self-microencapsulating pesticidal composition contains polymethyl methacrylate, a cosmetic moisturizing composition contains a copolymer from acrolein and sodium acrylate, etc.

(1) Note. See Class 424, subclass 78.17 for the definition of an ethylenic monomer.

772.5 Heterocyclic monomer:
This subclass is indented under subclass 772.4. Subject matter wherein the solid polymer is derived from a heterocyclic monomer, e.g., a cosmetic composition containing a copolymer derived from vinyl ether and maleic anhydride, a cosmetic emulsion containing a copolymer derived from vinylpyrrolidone, vinyl acetate, and vinyl myristate, etc.

772.6 Carboxylic acid containing monomer:
This subclass is indented under subclass 772.4. Subject matter wherein the solid polymer is derived from an ethylenically unsaturated monomer containing a carboxylic acid group, e.g., acrylic acid, maleic acid, fumaric acid, etc.

772.7 Heterocyclic monomer:
This subclass is indented under subclass 772.3. Subject matter wherein the solid polymer is derived from a heterocyclic monomer, e.g., ethylene oxide, etc.

773 Peptide containing:
This subclass is indented under subclass 772. Subject matter wherein the nonbioactive organic compound is a peptide which is not degraded to the constituent amino acids, e.g., collagen, etc.

774 Gelatin or derivative:
This subclass is indented under subclass 773. Subjects matter wherein the peptide is gelatin or a derivative thereof.

775 Casein (milk protein) or derivative:
This subclass is indented under subclass 773. Subject matter wherein the peptide is casein (milk protein) or a derivative thereof.

776 Albumin or derivative:
This subclass is indented under subclass 773. Subject matter wherein the peptide is albumin or a derivative thereof.

777 Carbohydrate or lignin, or derivative:
This subclass is indented under subclass 772. Subject matter wherein the nonbioactive organic compound is a carbohydrate or lignin or derivative thereof wherein the carbon skeleton of the carbohydrate is not destroyed except as noted below.

(1) Note. Alcohols and acids corresponding to carbohydrates are excluded from this subclass and compositions containing such compounds are in appropriate subclasses below.

(2) Note. Lignin is a noncarbohydrate, polymeric substance found in wood. It is isolated directly from wood or wood products or from the compositions derived from the treatment of wood, e.g., waste sulfite liquor or black liquor. The structure of the lignin monomer is not completely know.

778 Starch or derivative:
This subclass is indented under subclass 777. Subject matter wherein the carbohydrate is a starch or derivative thereof.

779 Algin or derivative:
This subclass is indented under subclass 777. Subject matter wherein the carbohydrate is algin or a derivative thereof.

780 Locust bean gum:
This subclass is indented under subclass 777. Subject matter wherein the carbohydrate is locust bean gum.

781 Cellulose of derivative:
This subclass is indented under subclass 777. Subject matter wherein the carbohydrate is cellulose or a derivative thereof.

782 Natural gum or resin:
This subclass is indented under subclass 772. Subject matter wherein the nonbioactive organic compound is a natural gum or resin, e.g., natural rubber, latex, rosin, etc.

783 Plant extract or plant material of undetermined constitution:
This subclass is indented under subclass 772. Subject matter wherein the nonbioactive organic compound is a plant extract of plant product of undetermined chemical constitution including essential oils.

(1) Note. An extract is considered to be of determined constitution when sufficient information as to its chemical structure is available to permit classification based upon its chemical structure.

784 Carboxylic acid or salt thereof:
This subclass is indented under subclass 772. Subject matter wherein the nonbioactive organic compound is a carboxylic acid or salt thereof.

785 Carboxylic acid ester:
This subclass is indented under subclass 772. Subject matter wherein the nonbioactive organic compound is an ester of a carboxylic acid.

786 Glyceride:
This subclass is indented under subclass 785. Subject matter wherein the ester is derived from glycerol.

(1) Note. The fats and oils and mainly triglycerides of fatty acids, e.g., tripalmitin.

787 Beeswax:
This subclass is indented under subclass 785. Subject matter wherein the ester is beeswax.

788 Nitrogen containing:
This subclass is indented under subclass 772. Subject matter wherein the nonbioactive organic compound contains nitrogen, e.g., amines or amides.

788.1 SOLID SYNTHETIC ORGANIC POLYMER DERIVED SOLELY FROM HYDROCARBON REACTANTS AS DESIGNATED ORGANIC NONACTIVE INGREDIENT CONTAINING:
This subclass is indented under the class definition. Subject matter wherein the composition contains a solid synthetic organic polymer derived solely from hydrocarbon reactants, e.g., polystyrene, etc.

SEE OR SEARCH CLASS:
424, Drug, Bio-Affecting and Body Treating Compositions, subclasses 78.01+ for a pharmaceutical composition which contains a solid synthetic organic polymer which functions as a designated organic active ingredient; subclass 78.08 for a more thorough discussion on polymers which are proper for Classes 424, 514 and 520 Series.

789 MISCELLANEOUS (E.G., HYDROCARBONS, ETC.):
This subclass is indented under the class definition. Subject matter not otherwise provided for, e.g., hydrocarbons, etc.

CROSS-REFERENCE ART COLLECTIONS

(1) Note. The following subclasses are collections of published disclosures pertaining to various specified aspects relating to drug, bioaffecting and body treating compositions and which aspects do not form appropriate bases for subclasses in the foregoing classification (i.e., subclasses superior hetero in the schedule). These disclosures relate to Class 514 subject matter only.

(2) Note. The general outline of the developed cross-reference art collections is as follows:

(A)Subclasses 800-809 provide for disclosures relating to PEPTIDE AND PROTEIN.

(B)Subclasses 810-935 provide for disclosures drawn to SPECIFICALLY DISCLOSES DISEASE CONDITION AND PHARMACEUTICAL EFFECT.

(1)This are collection will take patents dating from January, 1965 to date, e.g., Classes 71, 424, 514, 260, and the 530-570 series, etc.

(2)References crossed into this are collection should have specific, disclosed compositions or examples of use. A mere statement or mention of a utility or composition, unless actually claimed, is generally insufficient.

(C)Subclasses 936-975 are drawn to a number of various art concepts.

(1)Subclasses 936-947 drawn to LIQUID CARRIER, DILUENT OR SOLVENT, subclasses 948-956 drawn to SOLID CARRIER OR SOLID DILUENT, subclasses 957-959 drawn to GASEOUS OR GAS EMITTING CARRIER OR PROPELLANT, subclasses 960-965 drawn to PILL, LOZENGE, TABLET OR CAPSULE, subclasses 966-969 drawn to SUPPOSITORY BOUGIE OR BASE, subclasses 970-975 drawn to SPECIAL DESIGNATED INGREDIENT.

(2)These art collections provide (a) data from Class 260 (Compounds) and Classes 530-570 series and Class 585 dating from January 1, 1965, (b) and data from all other classes regardless of date.

(3)References crosses into these art collections should have specific, disclosed compositions or methods where the inventive concept or point of novelty resides in the carrier system, the form of the composition or have designated ingredients, e.g., stabilizers, etc.

800 LHRH LIKE:
Subject matter involving a compositions containing peptides that influence the release of lutenizing hormone.

801 COLLAGEN, GELATIN OR DERIVATIVE THEREOF:
Subject matter wherein the peptide composition contain collagen, gelatin of derivative.

802 FIBRINOPEPTIDES, BLOOD-COAGULATION FACTORS OR DERIVATIVE:
Subject matter wherein the peptide composition is related to fibrinopeptides, blood-coagulation factors or derivative.

803 KININ OR DERIVATIVE:
Subject matter wherein the peptide composition has Kinin-like activities.

804 PHLEOMYCIN SERIES OR DERIVATIVE:
Subject matter containing a phleomycin peptide or derivative.

805 ADRENOCORTICOTROPIC HORMONE OR DERIVATIVE:
Subject matter involving peptide composition having adrenocorticotropic activity.

806 SOMATOSTATIN OR DERIVATIVE:
Subject matter involving peptide compositions having somatostatin-like activity.

807 OXYTOXIN, VASOPRESSIN OR DERIVATIVE:
Subject matter involving peptide composition related to oxytoxin, vasopressin or a derivative thereof.

808 CALCITONIN OR DERIVATIVES:
Subject matter involving peptide composition related to calcitonin or a derivative thereof.

809 ENKEPHALIN, ENDORPHIN OR DERIVATIVES:
Subject matter involving neurological peptides related to enkephalin or endorphin.

810 ADDICTION:
Subject matter involving the treatment of the state of being devoted or given up to a practice or habit or to something habit forming to the extent that cessation causes severe trauma.

811 Alcohol:
This subclass is indented under subclass 810. Subject matter wherein the addictive substance is alcohol.

812 Narcotic:
This subclass is indented under subclass 810. Subject matter wherein the addictive substance is a narcotic.

813 Tobacco:
This subclass is indented under subclass 810. Subject matter wherein the addictive substance is tobacco.

814 ANEMIA:
Subject matter involving the treatment of anemia.

815 Sickle cell:
This subclass is indented under subclass 814. Subject matter wherein the anemic condition is sickle cell anemia.

816 ANESTHETIC, GENERAL:
Subject matter involving a general anesthetic effect.

817 ANESTHETIC, TOPICAL:
Subject matter involving a topical anesthetic effect.

818 ANESTHETIC, LOCAL:
Subject matter involving a local anesthetic effect.

819 ANTACID, ORAL:
Subject matter involving an antacid effect when administered orally.

820 With antiflatulent:
This subclass is indented under subclass 819. Subject matter wherein an ingredient to yield an antiflatulent effect is also present.

821 ANTIARRHYTHMIC:
Subject matter involving the treatment or prevention of arrhythmia in a patient in need thereof.

822 ANTICOAGULATION:
Subject matter involving an anticoagulation effect.

823 ANTIDOTE:
Subject matter involving an antidote (prevents or counteracts) for a poison or other noxious substance.

824 ARTERIOSCLEROSIS:
Subject matter involving treatment of arteriosclerosis.

825 ARTHRITIS:
Subject matter involving treatment of arthritis.

826 ASTHMA:
Subject matter involving treatment or alleviation of the symptoms of asthma.

827 ASTRINGENT, NONFACIAL:
Subject matter involving an astringent effect.

828 Topical for the skin:
This subclass is indented under subclass 827. Subject matter wherein the astringent is applied topically to the skin.

829 BITE OR STING:
Subject matter involving the treatment or alleviation of discomfort or other symptoms caused by a bite or sting.

830 Insect:
This subclass is indented under subclass 829. Subject matter wherein the bite or sting is from an insect.

831 Animal (nonpoisonous):
This subclass is indented under subclass 829. Subject matter wherein the bite or sting is from a nonpoisonous animal.

832 BLOOD SUBSTITUTE:
Subject matter involving a substance which is a substitute for blood or blood component.

833 BLOOD PLASMA EXTENDER:
Subject matter involving extending or increasing the amount of blood plasma in a patient in need thereof.

834 COAGULANT:
Subject matter involving the enhancing of coagulation.

835 CARIES:
Subject matter involving treatment or prevention of caries.

836 CHELATE:
Subject matter involving a material which acts as a chelating agent.

837 CHOLERA:
Subject matter involving the treatment or prevention of cholera.

838 CIRRHOSIS:
Subject matter involving the treatment or alleviation of the symptoms of cirrhosis of the liver.

839 CONTACT LENS TREATMENT:
Subject matter involving treatment of contact lens such as sterilization or cleaning.

840 CHEMICAL STERILIZING:
This subclass is indented under subclass 839. Subject matter wherein a chemical agent is used for sterilizing the contact lens.

841 CONTRACEPTIVE:
Subject matter involving prevention of conception.

842 Nonmammal:
This subclass is indented under subclass 841. Subject matter wherein conception is prevented in nonmammals, e.g., insects, etc.

843 Female (mammal):
This subclass is indented under subclass 841. Subject matter wherein conception is prevented in a female mammal.

844 COSMETIC, FACIAL:
Subject matter involving facial cosmetics.

845 Liquid make-up:
This subclass is indented under subclass 844. Subject matter wherein the cosmetic is a liquid make-up.

846 Cleansing cream or lotion:
This subclass is indented under subclass 844. Subject matter wherein the cosmetic is a cleansing cream or lotion.

847 Facial moisturizer:
This subclass is indented under subclass 844. Subject matter wherein the cosmetic is a facial moisturizer.

848 Facial astringent:
This subclass is indented under subclass 844. Subject matter wherein the cosmetic has an astringent effect when applied to the face.

849 COUGH AND COLD PREPARATION:
Subject matter involving relief of the symptoms of a cough or a cold.

850 Antitussive:
This subclass is indented under subclass 849. Subject matter involving suppression of coughing.

851 CYSTIC FIBROSIS:
Subject matter involving the treatment or prevention of cystic fibrosis.

852 DANDRUFF:
Subject matter involving the treatment or prevention of dandruff.

853 DECONGESTANT:
Subject matter involving a decongestant effect.

854 Vasoconstrictor:
This subclass is indented under subclass 853. Subject matter wherein the decongestant is a vasoconstrictor.

855 Expectorant:
This subclass is indented under subclass 853. Subject matter wherein the decongestant is an expectorant.

DERMATITIS:
Subject matter involving the treatment of the skin and problems related thereto.

858 Athlete's foot:
Subject matter involving the treatment or prevention of athlete's foot fungus.

859 Acne:
Subject matter involving the treatment or prevention of acne.

860 Cellulitis:
Subject matter involving the treatment of a cellulitis condition.

861 Eczema:
Subject matter involving the treatment of eczema.

862 Poison (ivy, oak, sumac):
Subject matter involving the treatment or prevention of poison ivy, poison oak, or poison sumac.

863 Psoriasis:
Subject matter involving the treatment or prevention of psoriasis.

864 Seborrhea:
Subject matter involving the treatment or prevention of seborrhea.

865 Diaper rash:
Subject matter involving the treatment or prevention of diaper rash.

866 DIABETES:
Subject matter involving the treatment or prevention of diabetes.

867 DIARRHEA:
Subject matter involving the treatment or alleviation of the symptoms of diarrhea in animals.

868 DISTEMPER:
Subject matter involving the treatment or prevention of distemper.

869 DIURETIC:
Subject matter involving substances which yield a diuretic effect.

870 EDEMA:
Subject matter involving the treatment or prevention of edema.

871 Topical:
This subclass is indented under subclass 870. Subject matter wherein the treatment of prevention calls for topical application.

872 EMESIS (MOTION SICKNESS-NAUSEA):
Subject matter involving the treatment or prevention of emesis.

873 EMOLLIENT:
Subject matter involving a specified emollient.

874 ESTROGENIC AGENT (NONCONTRACEPTIVE):
Subject matter involving a chemical agent used to obtain an estrogenic effect when administered to a patient.

875 FLEA CONTROL:
Subject matter involving the control or prevention of fleas.

876 Collar type:
This subclass is indented under subclass 875. Subject matter wherein the control and prevention is obtained from a collar type structure.

877 GALLSTONE:
Subject matter involving the treatment or prevention of gallstone.

878 GERIATRICS:
Subject matter involving the treatment or prevention of problems associated with aging.

879 Senility:
This subclass is indented under subclass 878. Subject matter wherein the problem is senility.

880 HAIR TREATMENT (THERAPEUTIC-SCALP):
Subject matter involving application to the head or scalp of a therapeutic composition.

881 Shampoo:
This subclass is indented under subclass 880. Subject matter wherein the composition is applied in the form of a shampoo.

882 HEMORRHOID PREPARATION:
Subject matter involving the treatment or alleviation of symptoms of hemorrhoids.

883 HODGKIN'S DISEASE:
Subject matter involving the treatment or prevention of Hodgkin's disease.

884 HYPOGLYCEMIA:
Subject matter involving the treatment or prevention of hypoglycemia.

885 IMMUNE RESPONSE AFFECTING DRUG:
Subject matter involving the enhancing or reducing of an immune response in a patient.

886 INFLAMMATION, SKIN:
Subject matter involving the treatment of skin inflammation.

887 Topical treatment:
This subclass is indented under subclass 886. Subject matter wherein application is topically to the skin.

888 INFLUENZA:
Subject matter involving the treatment or prevention of influenza.

889 INTERFERON INDUCER:
Subject matter involving the inducement of the production of interferon.

890 IRRITANT (E.G., TEAR GAS, ETC.):
Subject matter involving production of an irritating effect.

891 KIDNEY STONE:
Subject matter involving the treatment or prevention of kidney stone.

892 LAXATIVE:
Subject matter involving the inducement of a laxative effect in a subject needing said treatment.

893 LIVER DISORDER:
Subject matter involving the treatment of liver disorder (excludes cirrhosis of the liver).

894 Hepatitis:
This subclass is indented under subclass 893. Subject matter wherein the disorder is hepatitis.

895 MALARIA:
Subject matter involving the treatment or prevention of malaria.

896 MEASLES:
Subject matter involving the treatment or prevention of measles.

897 Rubella:
This subclass is indented under subclass 896. Subject matter wherein the type of measles to be treated is rubella.

898 MENINGITIS:
Subject matter involving the treatment or prevention of meningitis.

899 MENSTRUAL DISORDER:
Subject matter involving the treatment, prevention or alleviation of symptoms of a menstrual disorder.

MOUTH TREATMENT:
Subject matter involving the treatment of the mouth.

900 Periodontitis:
Subject matter under mouth treatment involving the treatment or prevention of periodontitis.

901 Mouthwash:
Subject matter under mouth treatment involving the use of a mouthwash.

902 Gingival:
Subject matter under mouth treatment involving the treatment or prevention of disorders of the gingiva.

903 MULTIPLE SCLEROSIS:
Subject matter involving the treatment, prevention or alleviation of symptoms of multiple sclerosis.

904 MULTIPLE VITAMINS:
Subject matter involving a composition which contains two or more vitamins.

905 With mineral:
This subclass is indented under subclass 904. Subject matter wherein the multiple vitamin composition also contains one or more minerals.

906 MUSCLE RELAXANT:
Subject matter involving a muscle relaxing effect.

907 MUSCULAR DYSTROPHY:
Subject matter involving the treatment, prevention or alleviation of symptoms of muscular dystrophy.

908 LEUKEMIA:
Subject matter involving the treatment or prevention of leukemia.

909 OBESITY:
Subject matter involving the treatment of obesity.

910 Anorectic:
This subclass is indented under subclass 909. Subject matter wherein the treatment is a chemical means for reduction or suppression of appetite.

911 Bulking agent:
This subclass is indented under subclass 909. Subject matter wherein a bulking agent is used to reduce food intake.

912 OPHTHALMIC:
Subject matter involving the treatment of an ophthalmic disorder.

913 Glaucoma:
This subclass is indented under subclass 912. Subject matter wherein the ophthalmic disorder is glaucoma.

914 Inflammation:
This subclass is indented under subclass 912. Subject matter wherein the ophthalmic disorder is inflammation.

915 Wetting agent:
This subclass is indented under subclass 912. Subject matter wherein a composition acts as a wetting agent or an artificial tear.

916 PYRETIC:
Subject matter involving alleviating fever.

917 RADIOACTIVE, ANTI-:
Subject matter involving the treatment or counter-acting of the effect of exposure to a radioactive substance or source.

918 REPELLENT:
Subject matter involving the repelling of a living organism from any site or locus.

919 Insect:
This subclass is indented under subclass 918. Subject matter wherein the organism beign repelled is an insect.

920 Mammal:
This subclass is indented under subclass 918. Subject matter wherein the organism being repelled is a mammal.

921 SHOCK:
Subject matter involving the treatment of shock in a patient.

922 SIDE EFFECT REDUCTION BY INCORPORATION OF A SECOND DESIGNATED INGREDIENT:
Subject matter involving the reducing or eliminating of an undesirable side effect of a given drug by concurrent administration of a second designated compound.

923 SLEEP AID (INSOMNIA):
Subject matter involving inducing sleep.

924 TUBERCULOSIS:
Subject matter involving the treatment or prevention of tuberculosis.

925 ULCER TREATMENT:
Subject matter involving the treatment, alleviation of symptoms or prevention of an ulcer.

926 Duodenal:
This subclass is indented under subclass 925. Subject matter wherein the ulcer is in the duodenal area of the digestive tract.

927 Peptic:
This subclass is indented under subclass 925. Subject matter wherein the ulcer is a peptic ulcer.

928 Topical:
This subclass is indented under subclass 925. Subject matter involving topical administration.

929 VASODILATOR:
Subject matter involving a dilation of the blood vessels on administration.

930 VASOCONSTRICTOR (NONDECONGESTANT):
Subject matter involving a constriction of the blood vessels.

931 VENEREAL DISEASE:
Subject matter involving treatment, alleviation of symptoms or prevention of a venereal disease.

932 Gonorrhea:
This subclass is indented under subclass 931. Subject matter wherein the venereal disease is gonorrhea.

933 Syphilis:
This subclass is indented under subclass 931. Subject matter wherein the venereal disease is syphilis.

934 Virus:
This subclass is indented under subclass 931. Subject matter wherein the venereal disease is viral.

935 UTERINE MOTILITY:
Subject matter involving the increasing of fertility by increasing uterine motility.

LIQUID CARRIER, DILUENT OR SOLVENT
Specifically disclosed composition or method where the inventive concept or point of novelty resides in the carrier system which is in liquid form. This area of the art collection also includes those disclosures wherein specified ingredients are disclosed for the purpose of describing the carrier system used in combination with an active ingredient.

936 DMSO CONTAINING:
Subject matter involving using a composition which contains dimethyl sulfoxide as a designated nonactive ingredient.

937 DISPERSION OR EMULSION:
Subject matter involving a composition in the form of a dispersion or emulsion.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for continuous liquid phase colloid systems (e.g., foams, emulsions, suspensions, dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

938 Oil-water type:
This subclass is indented under subclass 937. Subject matter wherein the dispersion or emulsion contains both an oil and water. This subclass covers both oil-in-water and water-in-oil type emulsions.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for continuous liquid phase colloid systems (e.g., foams, emulsions, suspensions, dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

939 Mineral oil-water type:
This subclass is indented under subclass 938. Subject matter wherein the oil is mineral oil.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for continuous liquid phase colloid systems (e.g., foams, emulsions, suspensions, dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

940 Quick break type:
This subclass is indented under subclass 939. Subject matter wherein the mineral oil emulsion is of the quick breaking type.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for continuous liquid phase colloid systems (e.g., foams, emulsions, suspensions, dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

941 Polyoxyalkylated compound containing:
This subclass is indented under subclass 939. Subject matter wherein the emulsion contains a polyoxyalkylated compound as the emulsifying agent.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes

of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for continuous liquid phase colloid systems (e.g., foams, emulsions, suspensions, dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

942 Organic sulfonate, sulfate or sulfite containing:

This subclass is indented under subclass 939. Subject matter wherein the emulsion contains an organic sulfonate, sulfate or sulfite compound as the emulsifying agent.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for continuous liquid phase colloid systems (e.g., foams, emulsions, suspensions, dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

943 Higher fatty acid or derivative containing:

This subclass is indented under subclass 939. Subject matter wherein the emulsion contains a higher fatty acid or a derivative thereof as the emulsifying agent.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for continuous liquid phase colloid systems (e.g., foams, emulsions, suspensions, dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

944 GEL:

Subject matter involving a gel form and containing specified ingredients to give a gel.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 98+ for colloid systems of continuous or semicontinuous solid phase with discontinuous liquid phase (gels, pastes, flocs, coagulates) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

945 FOAM:

Subject matter involving a foam and containing specified ingredients to form said foam.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 10+ for foam colloid systems or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

946 PENETRANT OR ABSORBENT (ENHANCES PENETRATION INTO SUBJECT TREATED):

Subject matter involving the increasing or enhancing of the rate or amount of active ingredient absorbed into the treated subject. This includes topical application as well as absorption through the digestive tract.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 198+ for wetting agents (e.g., spreading, penetrating, leveling) or methods of making such agents, when generically claimed or when there is no hierarchi-

cally superior provision in the USPC for the specifically claimed art.

947 Topical application:
This subclass is indented under subclass 946. Subject matter wherein application is to the skin and absorption is through the skin.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 198+ for wetting agents (e.g., spreading, penetrating, leveling) or methods of making such agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

SOLID CARRIER OR SOLID DILUENT
Specifically disclosed composition or method where the inventive concept or point of novelty resides in the carrier system which is in the form of a solid. This area of the art collection also includes those disclosures wherein specified ingredients are disclosed for the purpose of describing the carrier system used in combination with an active ingredient.

948 SOLID CANDY TYPE:
Subject matter involving an active ingredient in combination with a candy type base or carrier system.

949 NATURALLY DERIVED CLAY (E.G., BENTONITE, ETC.):
Subject matter involving the use of a natural clay as a solid carrier component.

950 MACROMOLECULAR (OTHER THAN SYNTHETIC RESINS):
Subject matter involving a solid carrier component which is a high molecular weight polymeric type material.

951 POWDERS, GRANULES OR PARTICLES OF SPECIFIED MESH OR PARTICLE SIZE:
Subject matter involving a composition in which an active ingredient is in combination with a solid carrier in the form of a powder, granule or particle of specified particle size or shape.

952 Wettable:
This subclass is indented under subclass 951. Subject matter wherein the particles, powder or granules are intended to be readily mixed with water or other solvent.

953 SHAPED FORMS ADAPTED FOR NON-INGESTIBLE USE OTHER THAN SUPPOSITORY TYPE (E.G., FILMS, INSERTS, ETC.):
Subject matter involving an active ingredient in combination with a solid carrier having a designated shape or form.

954 Ocular:
This subclass is indented under subclass 953. Subject matter wherein the composition is for application to the eye.

955 Biodegradable type:
This subclass is indented under subclass 954. Subject matter wherein the composition is biodegradable within the eye.

956 Aural or otic (i.e., ear):
This subclass is indented under subclass 953. Subject matter wherein the composition is for application to the ear.

GASEOUS OR GAS EMITTING CARRIER OR PROPELLANT
Specifically disclosed composition or method where the inventive concept or point of novelty resides in the carrier system which is either gaseous or gas emitting. This area of the art collection also includes those disclosures wherein specified ingredients are disclosed for the purpose of describing the carrier system.

957 VAPOR EMITTING COMPOSITION:
Subject matter involving application or distribution of an active ingredient using a vapor or gas.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents,

when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

958 FOR SMOKING OR INHALING:
Subject matter involving a combination of an active ingredient with a carrier system which allows administration by smoking or inhaling.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

959 BREATHING GASES:
Subject matter involving inhalation of a breathing gas such as oxygen containing gas and supplements thereto.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

PILL, LOZENGE, TABLET OR CAPSULE
Specifically disclosed composition or method where the inventive concept or point of novelty resides in the carrier system which takes the form of a pill, lozenge, tablet or capsule. This area of the art collection also includes those disclosures wherein specified ingredients are dissolved for the purpose of describing this form of carrier system used in combination with an active ingredient.

960 SIGNIFICANT TABLET FORMULATION (E.G., DESIGNATED EXCIPIENT, DISINTEGRANT, GLYDENT OR LUBRICANT, ETC.):
Subject matter involving designated nonactive ingredient which involves in a tableting process.

961 Binder therefor:
This subclass is indented under subclass 960. Subject matter wherein the designated ingredient is a binder for the tableting process.

962 CAPSULE (E.G., GELATIN, ETC.):
Subject matter involving a capsuling material or composition.

963 Microcapsule-sustained of differential release:
This subclass is indented under subclass 962. Subject matter wherein the capsule is microcapsule and which may allow for sustained or differential release of the active ingredient contained therein.

964 SUSTAINED OR DIFFERENTIAL RELEASE TYPE:
Subject matter involving a combination of an active ingredient and a carrier system which permits or results in a sustained or diffeential release of said active ingredient.

965 Discrete particles in supporting matrix:
This subclass is indented under subclass 964. Subject matter wherein the combination consists of particles which are supported or held in a matrix or material for this purpose.

SUPPOSITORY BOUGIE BASE
Specifically disclosed composition or method of preparation wherein the composition is in the form of a suppository, bougy or a base therefor. The group takes only those references wherein the inventive concept or point of novelty resides in the make-up of the carrier system rather than the active ingredient.

966 RECTAL:
Subject matter involving a form for rectal administration.

967 VAGINAL:
Subject matter involving a form for vaginal application or administration.

968 URETHRAL:
Subject matter involving a form for urethral application or administration.

969 OINTMENT OR SALVE BASE:
Subject matter involving a base which is to be combined with an active ingredient to give an ointment or salve base.

SPECIAL DESIGNATED INGREDIENT
Specifically disclosed or claimed composition or preparation which contains, in addition to the active ingredient, at least one special designated ingredient which has a purpose or is present other than as a carrier or excipient.

970 CONTAINING DESIGNATED INGREDIENT TO STABILIZE AN ACTIVE INGREDIENT:
Subject matter involving a designated ingredient which will act to stabilize an active ingredient.

971 Crystallization point depressant or cold stabilizer containing:
This subclass is indented under subclass 970. Subject matter wherein said designated ingredient acts to stabilize the active ingredient from cold or to prevent crystallization of said active ingredient.

972 Ultraviolet light stabilizer containing:
This subclass is indented under subclass 970. Subject matter wherein said designated ingredient acts to stabilize the active ingredient from the effect of ultraviolet light.

973 Sulfur compound additive as stabilizer (e.g., sulfites, etc.):
This subclass is indented under subclass 970. Subject matter wherein the designated ingredient is a sulfur containing compound.

974 CONTAINING DESIGNATED INGREDIENT TO REDUCE NOXIOUS EFFECTS OF ACTIVE INGREDIENT (E.G., TASTE, MASKING, ODOR REDUCING, ETC.):
Subject matter involving a designated ingredient which is intended to reduce the noxious effects of the active ingredient present.

975 CHARACTERIZED BY TYHE DESIGNATED SURFACTANT USED:
Subject matter involving a designated ingredient which is to act as a surfactant.

FOREIGN ART COLLECTIONS

The definitions below correspond to abolished subclasses from which these collections were formed. See the Foreign Art Collection schedule of this class for specific correspondence. [Note: The titles and definitions for indented art collections include all the details of the one(s) that are hierarchically superior.

FOR 100 1,2 or 1,4-diazine compound having two or more hetero rings:
Foreign art collection which is a 1,2 or 1,4-diazine which has heterocyclic substituent.

FOR 101 Hetero other than 1,2 or 1,4-diazine is part of a polycyclo ring system:
Foreign art collection wherein the heterocyclic substituent is part of a polycyclo substituent.

FOR 102 Diazine is bonded directly to the polycyclo ring system:
Foreign art collection wherein the 1,2 or the 1,4 diazine is bonded directly to the polycyclo ring system.

FOR 103 Diazines:
Foreign art collection in which the ring nitrogen occupy the 1, and the 4-positions of the diazine nucleus.

FOR 104 Hetero ring is four-membered and includes at least one nitrogen:
Foreign art collection which contains a heterocyclic ring consisting of four atoms, at least one of which is nitrogen.

(1) Note. The heterocyclic ring may include other hetero atoms of the group set forth in the definition of subclass 183 and the relative positions of the hetero atoms may vary.

FOR 105 Hetero ring is seven-membered and includes at least one nitrogen and at least one hetero atom other than nitrogen:
Foreign art collection which contains a heterocyclic ring consisting of seven atoms, at least one of which is nitrogen and at least one other hetero atom, other than nitrogen.

(1) Note. See Glossary for definition of het atom.

FOR 106 Hetero ring is seven-membered consisting of one nitrogen and six carbon atoms:
Foreign art collection which contains a seven-mem heterocyclic ring consisting of six carbon atoms and one nitrogen atom.

FOR 107 Polycyclic ring system having the seven-membered hetero ring as one of the cyclos:
Foreign art collection wherein the seven-membered hetero ring is one of the cyclos of a polycyclo ring system.

FOR 108 Ring nitrogen is shared by two or three of the cyclos:
Foreign art collection wherein the ring nitrogen of the seven-membered hetero ring is also a member of one or two additional cyclos in the polycyclo ring system.

FOR 252 1,2- or 1,4-diazine compound having two or more hetero rings:
Subject matter under subclass 247 which is a 1.2- or 1,4-diazine which has a heterocyclic substutuent.

FOR 253 Hetero ring other than 1,2- or 1,4-diazine is part of a polycyclo ring system:
Subject matter wherein the heterocyclic substituent is a part of a polycyclo substituent.

FOR 254 Diazine is bonded directly to the polycyclo ring system:
Subject matter wherein the 1.2- or 1,4-diazine is bonded directly to the polycyclo system.

FOR 255 1,4-Diazines:
Subject matter in which the ring nitrogen occupy the 1, and 4-positions of the diazine nucleus.

END